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Health Services

MANAGING CLINICAL ENGINEERING PROGRAMS

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This instruction implements the Clinical Engineering Support Policy in Air Force Policy Directive (AFPD) 41-2, Medical Support. This instruction applies to all Air Force, Air Force Reserve and Air National Guard (ANG) medical activities. It prescribes how to establish and manage a Clinical Engineering Program for the Air Force Medical Treatment Facilities (MTFs). The Clinical Engineering Program includes Medical Equipment Maintenance, Facility Management, and Medical Equipment Management. This instruction covers two of the three Functional Areas: Medical Equipment Maintenance (Chapters 2 and 3) and Facility Management (Chapter 4). See AFI 41-209, Medical Logistics Support, for instructions on establishing and executing a Medical Equipment Management programs. Note: For Medical Wings, references to Medical Logistics Flight Commander and Medical Support Squadron Commander shall be interchanged with Medical Logistics Squadron Commander and Medical Support Group Commander when applicable. This AFI may be supplemented at any level, but all supplements must be routed to the Air Force Medical Operations Agency, Medical Logistics Division (AFMOA/SGALO), 693 Neiman Street, 1st Floor, Fort Detrick, MD 21702-5006 (email: **AFMOA.SGALO.policy@detrick.af.mil**) for coordination prior to certification and approval. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, Recommendation for Change of Publication; route AF Form 847s from the field through Major Command (MAJCOM) Publications/Forms Managers. Ensure all records created as a result of processes prescribed in this publication are maintained IAW AFMAN 33-363, Management of Records, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) accessible through the AF Portal.

SUMMARY OF CHANGES

This change adds Medical Countermeasures-Chemical, Biological, Radiological, Nuclear (MC-CBRN) events and pre-positioned equipment assets to the scope of responsibility for the medical maintenance manager (paragraph 2.2.1.4.); provides guidance as it pertains to protected health information (PHI) (paragraph 2.2.2.7.); requires the equipment operator to sanitize electronic devices of patient information prior to disposition (paragraph 2.2.3.18.); clarifies Biomedical Equipment Technician (BMET) roles and responsibilities as they pertain to the maintenance of War Reserve Materiel (WRM) assets (paragraph 2.9.1.1. through 2.9.1.1.3); clarifies the responsibilities of the NCOIC, Medical Maintenance in the review of maintenance service contracts (paragraph 2.12.2.4.4.); increases scheduled maintenance actions for equipment categories to four (paragraph 2.15.2.); provides direction for the use of AF Form 4368, Maintenance and Certification Label, DD Form 2163, Medical Equipment Verification Certification, and AFTO Form 394, TMDE Certification Tag (paragraph 2.17.4. through 2.17.4.2.); defines roles and responsibilities for Test, Measurement and Diagnostic Equipment (TMDE) maintenance (paragraph 2.17.5. through 2.17.5.5.); provides instructions for eliminating PHI before equipment disposition to the Defense Reutilization and Marketing Office (DRMO) (paragraph 2.23.11.); adds software updates to the requirements for documented modifications (paragraph 2.31.5.); provides additional guidance for protecting PHI from unintentional disclosure (paragraphs 2.33.4. through 2.33.6.); provides current procedural guidance for managing medical device recalls and hazard alerts (paragraph 2.34.1., 2.34.2., 2.34.4. and 2.34.5.); defines current requirements for reporting medical equipment defects (paragraphs 2.35.2. through 2.35.2.5.); deletes MEDLOG work order procedures (paragraphs 3.39. through 3.39.3.6.); permits electronic record keeping of equipment data files (EDFs) (paragraph 2.43.1. through 2.43.1.3.2.); further details information to be maintained in an EDF (paragraphs 2.43.3.2. through 2.43.4.1. and 2.43.4.5.); lists required components of an EDF (paragraphs 2.43.6. through 2.43.6.13.); deletes managing repair parts in MEDLOG (paragraphs 2.46. through 2.46.5.2.); updates process for managing repair parts in the Defense Medical Logistics Support System (DMLSS) (paragraph 2.47.1., 2.47.1.1., 2.47.1.2. through 2.47.1.2.3., 2.47.1.4., 2.47.1.5., and 2.47.1.6); updates process for issuing repair parts (paragraphs 2.47.2.1. through 2.47.2.3., 2.47.3.1. and 2.47.4.); clarifies the Precision Measurement Equipment Laboratory (PMEL) medical maintenance relationship (paragraph 2.53.2. through 2.53.4.); further defines MERC responsibilities including training perspective (paragraphs 3.3.2., 3.3.2.2., 3.3.2.3., and 3.3.3); redefines MERC Assistance Visits (paragraphs 3.6. through 3.6.3., 3.6.4.2., 3.6.4.3., and 3.6.4.5. through 3.6.4.5.2., and 3.6.4.7., 3.6.4.8. and 3.6.4.10. through 3.6.5.); further clarifies the responsibilities of the Facility Manager (FM) (paragraphs 4.2.2.2. through 4.2.2.4., 4.2.2.12., 4.2.2.18. and 4.2.2.22.); updates inspection program guidance (paragraphs 4.3.2.2., 4.3.3.1. and 4.3.5.); provides further guidance on financial management (paragraphs 4.4.2. and 4.4.3. through 4.4.5.5.3.); updates fire protection and prevention program guidance (paragraphs 4.7.4.1. and 4.7.9.); provides further clarification for DMLSS-FM (paragraphs 4.14.1. and 4.14.1.2.); provides guidance for facility restoration and modernization (paragraph 4.15.1.); provides further details and guidance for the Medical Facilities Development Plan (paragraphs 4.16.1.1., 4.16.2.2., 4.16.3.2.3., 4.16.3.2.5. through 4.16.3.2.5.2., and 4.16.3.2.5.4.); further instruction on Medical Facility Utilization Board (paragraph 4.17.2.4.). A margin bar (|) indicates newly revised material.

Chapter 1

THE CLINICAL ENGINEERING PROGRAM

1.1. Purpose. The clinical engineering program combines multiple functional areas to ensure efficient, effective and coordinated technical services are provided to support the United States Air Force Medical Service.

1.2. Program Components. A clinical engineering program is managed by a qualified 41AX Medical Service Corps (MSC) officer, 4A2X1 Senior NCO or civilian clinical engineer and consists of a combination of two or more of the following functional areas:

1.2.1. Medical equipment maintenance includes planning, selecting, installing, modifying, maintaining and advising on application and replacement of medical equipment.

1.2.2. Facility management includes acquiring and managing the services necessary for operating, maintaining and modifying medical facilities and utility systems.

1.2.3. Medical equipment management includes authorizing, procuring, installing, in-use accounting, and replacing equipment in medical treatment facilities. See AFMAN 23-110, Volume 5, Chapter 18 for instructions on this part of the program.

1.2.4. These functions retain their individual identity where an integrated clinical engineering program is not implemented. Under these conditions, the purpose and objectives apply to all functions.

1.3. Program Objectives. Clinical engineering program personnel:

1.3.1. Manage health care technology to ensure equipment and medical treatment facilities are operational, safe, and properly configured to meet the peacetime and wartime missions of the medical service.

1.3.2. Develop a systematic approach for the maintenance and management of equipment and facilities.

1.3.3. Ensure executive management and health care providers are informed on matters relating to technology and facility planning, safety, and quality assurance and risk management issues relating to medical equipment or facilities. Inform them of new technologies and their applications.

1.3.4. Ensure compliance with appropriate Joint Commission on Accreditation of Healthcare Organization (JCAHO) standards, National Fire Protection Association (NFPA) codes and standards, all Federal regulations, and all appropriate state regulations.

1.3.5. Establish quality assurance and safety programs that document the identification and resolution of equipment and facility hazards.

1.3.6. Ensure medical personnel are trained on the safe operation and effective user maintenance of equipment and support systems.

1.4. Responsibilities.

1.4.1. The Air Force Medical Logistics Office, Clinical Engineering Branch (AFMLO/FOE), in conjunction with the Health Facilities Division (AFMSA/SGSF):

1.4.1.1. Formulates policy and guidance for Air Force clinical engineering programs.

1.4.1.2. Develops technical support programs to meet operational requirements of the clinical engineering program.

1.4.1.3. Develops programs to ensure equipment systems are serviceable, operable, and configured to meet both peacetime and wartime mission requirements.

1.4.1.4. Provides guidance and technical assistance to MAJCOMs and medical treatment facilities.

1.4.1.5. Monitors program operations including inter-service and interagency support agreements for intermediate maintenance services and for depot maintenance by United States Army depots.

1.4.1.6. Manages the Medical/Dental Investment Equipment Program. ***NOTE:*** All references to medical equipment apply equally to dental equipment unless noted otherwise.

1.4.1.7. Provides guidance to organizations purchasing major equipment systems. Reviews contract specifications, installation plans and support plans during the authorization process.

1.4.1.8. Provides support for central procurement of major medical equipment systems by initiating contract actions, reviewing technical specifications and evaluating contract awards.

1.4.1.9. Evaluates medical equipment and facility-related hazards and provides field guidance or modification instructions for corrective action. Assists in incident investigations involving medical equipment upon request.

1.4.1.10. Serves as personnel consultant to the Air Force Personnel Center (AFPC) for MSC officers qualified as clinical engineers.

1.4.1.11. Serves as the functional manager for the 4A2X1 career field, and monitors the formal training required for the clinical engineering programs.

1.4.1.12. Recommends assignment of Major Command (MAJCOM) functional managers (4A2X1) to MAJCOM surgeon generals.

1.4.2. MAJCOMs:

1.4.2.1. Implement and supervise the medical equipment maintenance, facility management, and equipment management programs according to policies and procedures established by Headquarters United States Air Force.

1.4.2.2. Coordinate personnel authorizations and assignments within the command.

1.4.2.3. Coordinate training of clinical engineering officers, BMETs, and civilian equivalents with Air Education and Training Command (AETC).

1.4.2.4. Fund and monitor any intermediate-level maintenance activities within the command.

1.4.2.5. Coordinate requirements and problems in all areas of clinical engineering support programs with AFMLO/FOE.

1.4.3. Medical Treatment Facility (MTF) Commander and Medical Support Squadron Commander:

1.4.3.1. For organizational maintenance:

1.4.3.1.1. Establish clinical engineering programs to ensure a safe environment for patients, staff, and visitors.

1.4.3.1.2. Provide adequate facilities, equipment, funding, and supply support for clinical engineering functions.

1.4.3.1.3. Ensure in-use and war reserve materiel (WRM) equipment are in a serviceable condition at all times.

1.4.3.1.4. Establish local procedures and controls to prevent unauthorized repair and modification of equipment and utility systems.

1.4.3.1.5. Ensures the facility has an active and integrated safety program in compliance with current Air Force and JCAHO standards.

1.4.3.2. For organizations designated as Medical Equipment Repair Centers (MERC):

1.4.3.2.1. Ensure the availability of resources to provide MERC support to all medical activities in the geographical region of responsibility IAW **Chapter 3**.

1.4.3.2.2. Provide adequate facilities, equipment, funding, vehicle, and supply support for intermediate level maintenance functions.

1.4.3.3. For organizations designated as Patient Movement Item (PMI) Centers, provide adequate facilities, equipment, funding, manpower, and supply support.

1.4.4. The Medical Logistics Flight Commander (MLFC):

1.4.4.1. Provides overall supervision of the clinical engineering program.

1.4.4.2. Ensures the individuals managing each program have the appropriate training, experience and qualifications.

1.4.4.3. Staffs medical equipment maintenance and facility management functions adequately to carry out the program.

1.4.4.4. Ensures development of technical support capabilities for all operational requirements including intermediate maintenance and engineering requirements.

1.4.4.5. Ensures coordination between the various functions where management has not implemented an integrated clinical engineering program.

1.4.4.6. Ensures preparation and maintenance of the medical facility development plan and equipment modernization plans and their coordination with the MTF executive committee.

1.4.4.7. Serves as the office of primary responsibility (OPR) to approve local operating instructions as needed.

1.5. Personnel Requirements.

1.5.1. Managers of the clinical engineering program and the individual functions will be professionals with sufficient levels of education, experience, and accomplishment to effectively and safely manage medical devices and facility systems.

1.5.1.1. Air Force Specialty Code (AFSC) 41AX MSC officers qualified as clinical engineers, senior NCOs (AFSC 4A2X1), or civilians with an equivalent background manage the clinical engineering program.

1.5.1.2. Commanders of ANG units without AFSC 4A2X1 personnel should appoint an officer or a noncommissioned officer to manage the clinical engineering functions. The appointed individuals must be familiar with these programs and work for the program during unit training assembly (UTA). ANG medical units without AFSC 4A2X1 personnel should use AFI 25-201, *Support Agreements Procedures*, or civilian contracts to meet maintenance requirements outlined in this instruction.

1.5.1.3. Assign duties according to the capabilities and skills of the personnel. Supervisors should match skill levels and training to the complexity of the tasks. Career Field Education and Training Plan 4A2X1 specifies skill and knowledge requirements.

1.5.2. The MLFC has authority to allocate assigned personnel in a manner best suited to accomplish the medical logistics mission. In general, the recommended allocation for basic MTF peacetime support is 65% medical materiel, 20% medical equipment maintenance, and 15% facility management. A slightly higher percentage in facility management should be considered for smaller accounts.

1.5.3. Biomedical equipment technician (BMET) personnel serve at medical facilities to maintain medical equipment or perform facility management duties. ***NOTE:*** These technicians do not routinely perform those maintenance tasks for which the base civil engineer or other agencies are responsible. BMETs are often not certified nor authorized to work on facility infrastructure systems and should not be utilized for this purpose.

1.5.4. BMETs will be formally trained and awarded an AFSC 4A2X1. (See AFI 36-2101, *Classifying Military Personnel*).

1.5.5. The 382nd Training Squadron (382nd TRS/XYBB), Sheppard AFB, TX, conducts the formal training courses. The courses cover fundamentals in medical equipment and facilities management as well as supplemental special topics.

1.5.5.1. Air Force Education and Training Course Announcements (ETCA) located at **https://etca.randolph.af.mil**, contains a complete description of the courses and application procedures for supplemental courses.

1.5.5.2. An active continuing education program is essential for effective development of personnel. Continuing education should consist of on-the-job training and periodic supplemental training either from the 382nd MTS/XYBB or commercial sources.

1.5.5.3. Officers and civilian equivalents should participate in education programs sponsored by the Air Force Institute of Technology (AFIT) and seek advanced degrees in clinical engineering, facilities management, or logistics.

1.5.5.4. BMETs should seek national certification from the International Certification Commission for Clinical Engineering and Biomedical Technology. Instruction on how to apply for and receive reimbursement for the exam can be found in AFI 41-104, *Professional Board and National Certification Examinations.* Information on certification requirements is available from International Certification Commission, c/o AAMI, 1901 1110 N. Glebe Rd. Suite 220, Arlington VA 22201, (703) 525-4890 extension 207, **mailto:certification@aami.org**.

1.5.5.5. Medical facility managers and clinical engineers should seek national certification from the American Society for Healthcare Engineering (ASHE) and/or the Project Management Institute (PMI). An individual who meets eligibility criteria and successfully completes the certification exam administered by ASHE will be designated a Certified Healthcare Facilities Manager (CHFM). An individual who meets eligibility criteria and successfully completes the certification exam administered by PMI will be designated a Project Management Professsional (PMP). For more information on these certification programs, refer to the ASHE website at **http://www.ashe.org** and the PMI website at **http://www.pmi.org**. Both ASHE and PMI are approved board-certifying agencies for Medical Service Corps officers. For more information regarding application procedures, reimbursable expenses, and award of the "M" prefix, refer to AFI 41-104, *Professional Board and National Certification Examinations*.

1.6. Overview of This Instruction.

1.6.1. This instruction addresses two of the functional areas that compose the clinical engineering program: medical equipment maintenance and facility management. ***NOTE:*** Instructions for establishing a medical equipment management program can be found in AFMAN 23-110, Volume 5, *Air Force Medical Materiel Management System*.

1.6.2. Medical equipment maintenance instructions are divided into two parts:

1.6.2.1. **Chapter 2** provides guidance on establishing a maintenance program at the local organizational level. The information is divided into working areas and sub-organized based on the life cycle of equipment. For example, pre-purchase evaluation comes before initial inspection.

1.6.2.2. **Chapter 3** provides additional maintenance guidance on establishing a Medical Equipment Repair Center, which is the designated maintenance activity for performing intermediate maintenance in a geographical region.

1.6.3. Facility management instructions are arranged by functional area in **Chapter 4**.

Chapter 2

ESTABLISHING AN ORGANIZATIONAL MEDICAL EQUIPMENT MAINTENANCE PROGRAM

Section 2A—Administering the Program

2.1. Program Elements. The medical equipment maintenance program ensures medical equipment is serviceable, safe, and properly configured to meet the peacetime and wartime missions of the medical service. The program provides:

2.1.1. Technical assistance in evaluating and selecting medical equipment before it is purchased, to ensure the Air Force acquires equipment with optimum performance and safety criteria.

2.1.2. Initial inspections, scheduled preventive maintenance (PM), safety evaluations, and calibration of equipment and supporting utilities.

2.1.3. A responsive repair service that minimizes equipment downtime.

2.1.4. A quality assurance program for equipment that identifies and corrects equipment hazards and defects.

2.1.5. Assistance in training medical personnel on how to operate clinical equipment safely and effectively.

2.1.6. Documentation that meets both regulatory and accreditation requirements and the needs of the overall medical equipment management program.

2.2. Responsibilities. These responsibilities are furnished as minimum requirements and are not intended to limit management functions to the areas listed.

2.2.1. The clinical engineering officer, senior biomedical equipment technician (BMET), or civilian equivalent:

2.2.1.1. Implements and manages the organization's medical equipment maintenance program.

2.2.1.2. Implements and manages medical equipment maintenance support to Air Force Reserve Command (AFRC) and Air National Guard (ANG) medical activities located at or near the facility in accordance with paragraph **2.5**.

2.2.1.3. Obtains required facilities and equipment for the organization's maintenance program.

2.2.1.4. Makes certain WRM equipment , MC-CBRN equipment, and other pre-positioned equipment assets are maintained in a serviceable condition at all times, regardless of ownership or funding source.

2.2.1.5. Plans for equipment support in the conceptual phase of each new equipment system.

2.2.1.6. Develops an Equipment Management Plan consistent with JCAHO Environment of Care standards. ***NOTE:*** Refer to the Air Force Medical Logistics (AFML) website for sample plans.

2.2.1.7. Develops and publishes local policies and operating instructions (OI) as required.

2.2.1.8. Develops metrics from the Maintenance Management Report to evaluate the effectiveness of the maintenance programs.

2.2.1.9. Ensures a maintenance management metrics program is updated monthly and provided to the Medical Logistics Flight Commander (MLFC) for signature.

2.2.1.10. Establishes a work control and priority system to ensure uninterrupted service to supported activities.

2.2.1.11. Establishes a periodic maintenance and inspection schedule and ensures maintenance personnel perform scheduled maintenance.

2.2.1.12. Manages the appropriate use and on-hand supply of repair parts.

2.2.1.13. Arranges depot or contract maintenance only for those systems for which the Air Force does not have adequate training, tools, test equipment, and staff.

2.2.1.14. Establishes equipment records for non-vehicular medical equipment in ambulances, such as life-support, oxygen systems, and rescue equipment and ensures it is maintained annually.

2.2.1.15. Develops a self-inspection checklist and performs at least an annual self-inspection to ensure that required functions are properly managed. Self-inspection is an organized method of internal review that allows a manager to view critical areas and available resources. The self-inspection focuses on the mission, resources, training, and personnel within the department.

2.2.1.16. Performs a customer survey at least annually to determine the adequacy, quality, and effectiveness of maintenance support and the degree of compliance with Headquarters Air Force, Major Command (MAJCOM), and local maintenance directives.

2.2.2. BMETs:

2.2.2.1. Maintain medical equipment to the standards defined or specified by this instruction.

2.2.2.2. Ensure historical maintenance data is recorded accurately.

2.2.2.3. Ensure equipment guarantees and service warranties are processed and registered with the manufacturer and acquire warranty service when appropriate.

2.2.2.4. Monitor commercial contract maintenance services to ensure maintenance is performed according to contract agreements.

2.2.2.5. Offer initial and follow-on operator maintenance training to equipment operators and document in accordance with paragraph **2.37**.

2.2.2.6. Ensure equipment operators perform appropriate user maintenance.

2.2.2.7. Identify all facility medical equipment that is capable of storing Protected Health Information (PHI) IAW federal, state, and local regulations (e.g. HIPAA, JCAHO, AAHC, etc.), and ensure data is removed IAW with paragraph 2.23.11.

2.2.3. Equipment Operators:

2.2.3.1. Ensure only authorized equipment inspected by the medical equipment maintenance activity is used.

2.2.3.2. Ensure equipment is used only for its designed purpose.

2.2.3.3. Operate equipment in accordance with operator's manuals.

2.2.3.4. Care for and keep up equipment so that it is always operating properly and in serviceable condition.

2.2.3.5. Immediately report equipment malfunctions or damage to the medical equipment maintenance activity in accordance with paragraph **2.36**.

2.2.3.6. Will not attempt repairs beyond the operating techniques described in the operator's manual.

2.2.3.7. Ensure equipment requiring calibration is calibrated before use on a patient.

2.2.3.8. Replace accessible light bulbs, batteries, tubing, and supplies.

2.2.3.9. Routinely clean and dust equipment.

2.2.3.10. Watch for conditions that may injure the patient or damage the equipment.

2.2.3.11. Investigate and report to the BMET any anomalies such as erratic meter responses, electrical flashing or arcing, or unusual sounds that may indicate malfunction.

2.2.3.12. Immediately impound any equipment and consumables involved in an incident and notify the medical equipment maintenance activity.

2.2.3.13. Clean equipment in compliance with local infection control policies.

2.2.3.14. Check batteries.

2.2.3.15. Check fluid levels and replenish or drain if appropriate.

2.2.3.16. Turn off equipment, as appropriate, when not in use.

2.2.3.17. Properly store and protect the equipment.

2.2.3.18. Remove PHI from devices before disposition, to the fullest extent possible, without rendering the device inoperative. See paragraph 2.33.6.

2.3. Finding Additional Information and Guidance.

2.3.1. The publications listed in **Attachment 2**, paragraph **A2.1**, are essential to the effective operation of a medical equipment maintenance program.

2.3.2. The medical equipment maintenance activity must keep a current file of these publications or have immediate access to the publications in a nearby location. Maintenance personnel must be familiar with each publication.

2.3.3. The medical equipment maintenance support section may want to obtain the publications listed in **Attachment 2**, paragraph **A2.2** as additional reference material.

2.3.4. Obtain the commercial publications from the sources listed in **Attachment 2**, paragraph **A2.3**.

2.3.5. **Attachment 2**, paragraph **A2.4**, lists forms needed to effectively manage a medical equipment maintenance activity.

2.3.6. Base activities are encouraged to communicate directly with their respective regional MERCs for technical or management assistance. Activities may also contact the following agencies for special assistance:

2.3.6.1. Program guidance and Air Force career guidance (AFSC 4A2X1): AFMLO/FOE, 1423 Sultan Street, Suite 200, Frederick MD 21702-5006; DSN 343-4040, Commercial (301) 619-4040.

2.3.6.2. MAJCOM maintenance or manning assistance: Medical logistics representative or senior noncommissioned officer 4A2X1 at the respective MAJCOM, if assigned.

2.3.6.3. Training: 382nd Training Squadron (382nd TRS/XYBB); Basic Course, DSN 736-8226; Supplemental Courses, DSN 736-8229; Career Development Course Writer, DSN 736-8478.

2.3.6.4. Medical Logistics (MEDLOG) system: Headquarters Standard Systems Group (HQ SSG), DSN 596-5551, **https://www.ssg.gunter.af.mil/medsys/medlog/**.

2.3.6.5. Defense Medical Logistics Standard Support (DMLSS) system: **http://www.tricare.osd.mil/dmlss/**.

2.3.6.6. Radiographic and monitoring equipment (acquisition, accessories and repair parts): Commander, Defense Supply Center Philadelphia, ATTN: DSCP-MQX, 700 Robbins Avenue, Philadelphia, PA 19111-5092; DSN 444-4351, Commercial (215) 737-4351, **http://www.dmmonline.com**.

2.3.6.7. All other medical equipment (acquisition, accessories and repair parts): Commander, Defense Supply Center Philadelphia, ATTN: DSCP-MQA, 700 Robbins Avenue, Philadelphia, PA 19111-5092; DSN 444-2188, Commercial (215) 737-2188. **http://www.dmmonline.com**

2.3.6.8. United States Army medical maintenance depots: See paragraph **2.51**.

2.3.6.9. Regional Contacts for radiation protection, industrial hygiene, and other services: can be found on the AFML homepage **https://afml.ft-detrick.af.mil/afmlo**.

2.4. Defining Maintenance Levels.

2.4.1. Maintenance levels are defined to establish effective maintenance support for medical equipment and ensure the efficacy of the program. Maintenance levels allow for assignment and management of maintenance responsibilities and promote effectiveness and economy. There are four maintenance levels: user, organizational, intermediate, and depot.

2.4.1.1. User Maintenance. The equipment operator performs user maintenance, including proper operation and use of equipment, daily inspections, cleaning, simple lubrication, minor exterior repairs and operational adjustments, and reporting equipment malfunctions to a supervisor or medical equipment maintenance activity.

2.4.1.2. Organizational Maintenance. The using organization performs organizational maintenance on its assigned equipment. Organizational maintenance requires trained BMETs and the use of tools and test equipment not available to the equipment operator. A qualified BMET performs or supervises the maintenance. Organizational maintenance includes, but is not limited to, adjustment, calibration, inspection, lubrication, maintenance contract management, modification, repair, replacement of parts, or assemblies and subassemblies, servicing, and training.

2.4.1.3. Intermediate Maintenance. A designated maintenance activity (MERC) performs intermediate maintenance for organizations in a geographical region. Intermediate maintenance supports organizational maintenance by performing complex maintenance tasks that call for special skills, tools, or equipment not available at the organizational level.

2.4.1.4. Depot Maintenance. Specialized activities perform depot maintenance to aid organizational and intermediate maintenance activities. Army depots and contract maintenance provide depot maintenance for medical facilities. Depot maintenance includes, but is not limited to the following: calibrations, major repairs, manufacture of parts, overhauls, and rebuilds of components and subassemblies.

2.5. Supporting AFRC and ANG.

2.5.1. AFRC and ANG medical activities and aeromedical evacuation squadrons that are authorized and assigned AFSC 4A2X1 personnel must perform organizational maintenance support according to the instructions in this chapter.

2.5.2. Maintenance support to AFRC and non-mobilized ANG medical activities and aeromedical evacuation squadrons that are not authorized or assigned AFSC 4A2X1 personnel will be provided as follows:

2.5.2.1. Activities should request organizational maintenance support for medical equipment from the closest active Air Force medical unit. A written support agreement is required for this type of support.

2.5.2.2. Non-mobilized ANG units requiring organizational maintenance support or emergency or essential repairs between scheduled MERC visits will negotiate a written support agreement according to AFI 25-201, *Support Agreements Procedures.*

2.5.2.3. The regional MERC provides organizational maintenance support as defined in **Chapter 3** for activities outside the immediate area of an active Air Force medical activity, or if manpower or equipment limitations prevents the nearest active duty facility from providing support. The MERC performs annual PM, calibration, repair, safety, and administrative support.

2.5.2.4. MERC personnel train AFRC and ANG personnel on how to maintain equipment so it can be safely operated during interim periods. In addition, the MERC provides technical assistance on new equipment systems. Written support agreements are not required to receive support from regional MERCs.

2.5.2.5. The designated MERC provides intermediate maintenance support according to **Chapter 3**.

2.5.2.6. The AFRC and ANG units obtain repair parts required to maintain medical equipment according to local directives except when the parts are normally stocked by the active duty maintenance activity. Parts and supplies that the MERC provides are normally non-reimbursable. Reimbursement for medical equipment maintenance support received from other than a regional MERC is obtained according to AFI 25-201, *Support Agreements Procedures*.

2.5.3. Organizations may request support from other DoD activities when it is impractical for an AFRC or ANG medical activity to obtain support from either a regional MERC or other Air Force activity for reasons of economy or geographic location. Organizations negotiate support agreements according to DoDI 4000-19, *Interservice and Intragovernmental Support*.

2.5.4. AFRC and ANG units may also use depots or contracts to obtain maintenance for medical equipment.

2.6. Supporting Other DoD and Federal Agencies.

2.6.1. Active duty organizations are encouraged to support Department of the Army, Navy, or other Federal Government agencies such as Indian Health Service, United States Coast Guard, or Veterans Affairs, if such support does not affect Air Force operational missions and is cost effective. Organizations should prepare support agreements with these agencies according to DoDI 4000-19, *Interservice and Intragovernmental Support.*

2.6.2. U.S. Army veterinary services located on Air Force installations are supported by the local medical equipment maintenance activity in accordance with the Memorandum of Understanding (MOU) established between the Army and Air Force. A copy of the MOU can be found on the AFML website.

2.6.3. BMETs should forward one copy of all new or revised agreements for medical equipment support to AFMLO/FOE.

2.7. Supporting Aeromedical Evacuation and Patient Movement Items Units.

2.7.1. The host medical equipment maintenance activity performs organizational maintenance on equipment at active duty Aeromedical Evacuation (AE) and Patient Movement Items (PMI) units on their base.

2.7.2. The medical equipment maintenance activity will ensure AF Form 4033, **PMI/AE Certification Label**, is affixed to each AE or PMI medical equipment item certified for flight. A listing of model specific equipment items certified for flight can be found on the AFML website.

2.7.3. The MERC supporting the host medical equipment maintenance activity provides intermediate maintenance for AE and PMI equipment.

2.7.4. The host medical equipment maintenance activity may request repair-and-return maintenance support from the regional MERC or PMI center by telephone, e-mail, or letter. If the MERC or PMI center approves shipment of the equipment, send the equipment through auditable and insurable transportation channels. Include a thorough description of the problem and identification of the organization originating the shipment.

2.7.5. During any maintenance of PMI equipment, the servicing BMET will coordinate with the closest PMI center to verify equipment owner, ensure the equipment location is current in the tracking system, and provide the latest calibration date for update in the tracking system.

2.7.6. The closest medical equipment maintenance activity performs any corrective maintenance required for equipment being used on a patient mission. The medical equipment maintenance activity documents the work performed on a manual work order and forwards it to the owning activity.

2.7.7. A local BMET who works on equipment belonging to another organization records it as an unscheduled work order with no index number/ECN to account for time and parts.

2.7.8. AMC/SGSL and AFMLO will program for the modernization and replacement of PMI equipment assets, but breakage is the responsibility of the host unit.

2.8. Supporting Medical Equipment not Owned by the MTF.

2.8.1. The BMET coordinates with the Medical Equipment Management Office (MEMO) to identify and appropriately manage all leased, loaned, consigned, or privately owned medical equipment used in Air Force medical treatment facilities.

2.8.1.1. MEMO will maintain a list of all leased, loaned and consigned authorizations in accordance with AFMAN 23-110, Volume 5, Chapter 18.

2.8.1.2. Equipment that the MTF does not own must meet the same standards as MTF-owned equipment.

2.8.1.3. BMETs conduct an initial operational and safety inspection to ensure the equipment complies with appropriate safety and performance standards before using it for patient care.

2.8.1.4. Equipment that fails inspection must be repaired at the owner’s expense and re-inspected by a BMET.

2.8.1.5. Equipment that the MTF doesn’t own must be maintained and calibrated as outlined in this instruction and/or the manufacturer’s literature.

2.8.1.6. The equipment owner is responsible for equipment maintenance unless otherwise specified under a contracting agreement.

2.8.1.7. Maintenance documentation must be submitted to the NCOIC of the medical equipment maintenance activity once the work is completed.

2.8.2. When leased, loaned, consigned, or privately owned medical equipment is to be used for greater than a six-month period, enter it in the MEDLOG/DMLSS system as a maintenance-significant supply item for equipment maintenance tracking and management purposes.

2.9. Supporting War Reserve Materiel (WRM). NOTE: The medical WRM program prepositions or locates assets according to current Air Force Medical Service concepts of operations and war plans. The materiel must be in a serviceable condition at all times.

2.9.1. BMET Responsibilities.

2.9.1.1. Maintenance of WRM equipment in a peacetime environment is ultimately the responsibility of locally assigned BMET personnel.

2.9.1.1.1. If contract maintenance is used to augment local BMET capabilities, the BMET is required to validate maintenance is being adequately performed and supporting documentation is archived in the EDF and recorded appropriately in DMLSS. The senior-ranking local BMET or a designated representative will receive QAP Phase I training and be appointed as the QAP.

2.9.1.1.2. Work performance will be monitored using an approved Quality Assurance Surveillance Plan (QASP) and appropriate actions will be taken for substandard maintenance and reported to the MLFC.

2.9.1.1.3. BMETs assigned to, or responsible for WRM assemblages must ensure scheduled maintenance is performed on all medical WRM equipment as defined in this AFI.

2.9.1.2. Follow the guidance in AFI 10-403, *Deployment Planning and Execution,* and AFMAN 24-204, *Preparing Hazardous Materials for Military Air Shipments*, to prepare for mobilizing and transporting WRM materiel. BMETs report all equipment containing hazardous material to the designated Hazardous Declaration Certifier for each WRM assemblage.

2.9.1.3. Advise AFMLO/FOE when non-authorized tools and test equipment are needed to perform maintenance on WRM equipment. This will enable AFMLO to evaluate the items and initiate additions to the allowance standard as appropriate.

2.9.1.4. Identify environmental conditions that could cause equipment and supplies to deteriorate. Develop packaging, storage, and special inspection criteria to ensure the serviceability of all items.

2.9.1.5. Report unserviceable WRM equipment that may limit the operational capability of a project to the WRM NCOIC for notation on the monthly WRM materiel availability percentage report submitted to Medical Readiness.

2.9.1.6. Identify requirements for host-tenant support agreements with other base support activities for ancillary and other classes of non-medical equipment that may require periodic maintenance. Base activities that may require this service include Precision Measurement Equipment Laboratory (PMEL), communications, and aircraft maintenance functions.

2.9.2. Maintaining Pre-Positioned or Deployable Assemblages.

2.9.2.1. BMETs must inspect equipment stored in pre-positioned assemblages at the operating location as well as mobility assemblages maintained in a deployable mode. The BMET inspects equipment immediately upon receipt and thereafter at the frequency listed by medical device code. A complete listing of current device codes can be found on the AFML website.

2.9.2.2. All WRM equipment items must have, as a minimum, an annual inspection assigned to it in the MEDLOG or DMLSS system. An exception to this minimum annual requirement are large lots of equipment (e.g. manual beds, wheel chairs, etc.) which may be visually inspected for signs of deterioration, corrosion, or other damage at least every 24 months or 50 percent of large lots annually. If signs of deterioration are detected, inspect all items in that equipment class or storage area as appropriate.

2.9.2.3. Record any repairs by generating unscheduled work orders. Maintain a letter or work order on file that documents the most recent visual inspection of a sample or area.

2.9.3. BMET Responsibilities for Ancillary Equipment.

2.9.3.1. Ensure ancillary support equipment such as power distribution systems, environmental control systems, and other applicable real property equipment is operational and in good condition (see AFI 32-1063, *Electric Power Systems,* and AFI 25-101, *War Reserve Material Policy*).

2.9.3.2. BMETs should identify to medical logistics that a host-tenant support agreement or Memorandum of Understanding (MOU) is needed to ensure the base civil engineer performs organizational maintenance on these items while in storage and when activated. A draft MOU can be found on the AFML website.

2.9.3.3. The agreement/MOU should assign the base civil engineer responsibility for preparing the ancillary support items for air shipment in the event of deployment (according to AFI 10-403, *Deployment Planning and Execution*), and for providing periodic training to BMETs on how to operate and maintain this equipment.

2.9.4. Maintaining Records on WRM.

2.9.4.1. Create and maintain an individual Equipment Data File (EDF), as described in paragraph **2.43** of this AFI for each medical WRM equipment item.

2.9.4.2. EDFs for mobility assemblages must be maintained in a deployable mode. If MEDLOG or DMLSS stand-alone is not available, use AF Form 1763, **Medical Maintenance Work Order**, to record each maintenance action conducted during activation.

2.9.4.3. When returning the materiel to storage, transfer all maintenance information recorded on the AF Form 1763 into the MEDLOG/DMLSS system or onto AF Form 509, **Medical Equipment Maintenance Record**, if no MEDLOG/DMLSS system is available.

2.9.4.4. Maintain a separate technical literature file containing information on each type of equipment in the assemblage. Units with a mobility mission maintain this literature in a deployable mode as part of the logistics detail (LOGDET).

2.9.5. Managing Repair Parts and Kits. ***NOTE:*** This section refers to WRM assemblages with spare parts kits authorized.

2.9.5.1. While in garrison, parts are WRM stock fund assets and must be managed manually.

2.9.5.2. Only upon activation of the assemblage can these parts be managed as repair parts in the MEDLOG/DMLSS system. In this case, parts are ordered and maintained the same as a peacetime operating account.

2.9.5.3. Ordering of repair parts and repairs to WRM equipment not being used in exercises shall be charged to the WRM stock fund. See AFMAN 23-110, Volume 5, Chapter 15, for funding of WRM repair parts.

2.9.6. Developing WRM Maintenance Operating Instructions (MOI).

2.9.6.1. BMETs assigned to mobility assemblages will develop formal written MOIs as applicable.

2.9.6.2. Maintain the MOIs in a deployable mode as part of the LOGDET.

2.9.6.3. As a minimum, the MOIs must cover:

2.9.6.3.1. The BMET's pre-deployment, deployment, and post-deployment responsibilities.

2.9.6.3.2. Procedures for requesting and processing work orders, repair parts, and spare parts.

2.9.6.3.3. Repair parts inventory management and control procedures for spare parts assigned to the mobility assemblage.

2.9.6.3.4. Procedures for identifying and controlling technical literature, tools and test equipment assigned to the mobility assemblage.

2.10. Equipping Medical Equipment Maintenance Facilities.

2.10.1. Medical equipment maintenance activities should include an administrative area and a shop area.

2.10.2. The shop area must be adequate in size and equipped with proper tools and test equipment to perform the maintenance mission. It should enable all the necessary maintenance tasks to be performed in the shop itself.

2.10.3. Utilize the Department of Defense space planning criteria to determine the space requirements for the medical equipment maintenance facility. The regional Health Facilities Office (HFO) is available to provide guidance and can assist in the planning stages.

2.10.4. Facilities Requirements.

2.10.4.1. Sensitive electronics equipment maintenance room: Environmentally controlled, dust-free room (as much as possible) used to calibrate and maintain intricate sensitive equipment such as anesthesia equipment, fiber optic systems, lasers, and ventilators.

2.10.4.2. Equipment storage area: Secure area where you can store equipment awaiting parts or maintenance without excessive dust, moisture, and other adverse environmental elements.

2.10.4.3. Repair parts storage area: Secure area where you can properly store repair parts.

2.10.4.4. Administrative area: A well-lit area for administrative functions and customer service.

2.10.4.5. General work area: A well-lit area for technician workbenches, equipment disassembly, and location of drill presses and other large shop equipment.

2.10.4.6. BMETs must only paint in well-ventilated areas approved by bioenvironmental engineering.

2.10.4.7. Keep the maintenance areas clean and orderly. Machines, equipment, and work surfaces should be cleaned, and waste removed and disposed of properly on a regular basis. Tool and materiel storage areas should be orderly and of ample size.

2.10.4.8. AFI 32-2001, *Fire Protection Operations and Fire Prevention Program*, AFOSH Standard 91-8, *Medical Facilities*, and AFOSH Standard 91-66, *General Industrial Operations*, provide guidance on shop safety.

2.10.5. Utilities. Medical equipment maintenance facility requirements include multiple 110 volt duplex outlets and at least one each 220 volt, 60 amp single and three-phase AC power outlet. Requirements also include adequate lighting and telephone service, emergency eyewash, internet and LAN connectivity, medical air, nitrous oxide and scavenging system (if MTF has analgesia or anesthetic devices), vacuum system, ventilation and temperature control, and wash sink.

2.10.6. Accessibility.

2.10.6.1. The medical equipment maintenance facility should be easily accessible to the using activities it supports.

2.10.6.2. Locate the shop facility where users can bring equipment items to and from the shop without unnecessary handling and exposure to bad weather.

2.10.7. Tool Requirements.

2.10.7.1. The 382nd Training Squadron, Sheppard AFB, TX budgets for and issues National Stock Number (NSN) 5180-00-117-3414, **Tool Kit, Biomedical Equipment Repairman**, to all active duty course graduates. ***NOTE:*** ANG/AFRC BMET graduates are issued a tool kit upon arrival to his or her unit of assignment. Tool kits purchased with unit funds become property of the unit.

2.10.7.2. Organizations issue the biomedical equipment repairman tool kit to individuals returning to duty in the AFSC 4A2X1 career field.

2.10.7.3. The medical equipment maintenance activity may purchase special purpose hand tools and test equipment. Such tools and equipment become the property of the medical equipment maintenance activity. The scope of work and the type of equipment maintained determines the amount and type of shop equipment required.

2.10.7.4. Medical equipment maintenance activities must account for all kits according to AFMAN 23-110, Volume 5.

2.10.7.5. BMETs may use the tool kits for official business only. The kits remain in the BMET's possession for the duration of their assignments as AFSC 4A2X1. The tool kit will be hand carried or shipped as professional goods during permanent change of station. These tool kits will not be shipped in normal household goods.

2.10.7.6. When deploying, the tool kit will be hand carried on the aircraft and deployment orders will indicate this additional baggage requirement.

2.10.7.7. When a BMET terminates service (retires or separates) or is removed from duty as an AFSC 4A2X1, the BMET turns in the tool kit to the losing activity's senior BMET. ***NOTE:*** ANG BMETs turn in the tool kit to the senior health technician if a senior BMET does not exist within the unit.

2.10.7.8. The medical equipment maintenance activity replaces any missing and unserviceable tools in the tool kit.

2.10.7.9. The medical equipment maintenance activity gives the tool kit to MEMO for return to the 382nd Training Squadron. ***NOTE:*** ANG units retain the tool kit and reissue it when the BMET vacancy is filled.

2.10.8. The 382nd Training Squadron is responsible for replacing any unserviceable tool cases. ***NOTE:*** ANG medical units are responsible for replacing any unserviceable tool cases purchased with ANG funds.

2.10.8.1. Maintenance organizations may purchase or retain tool kits to fulfill unique local needs, such as separate operating locations, dental clinics, or other legitimate uses as determined by the clinical engineering officer or senior BMET.

2.10.8.2. Tool kits acquired for unique local needs should be picked up on MEMO records for the maintenance activity custodial account according to AFMAN 23-110, Volume 5.

2.10.8.3. AFMLO/FOE maintains current component listings of NSNs 5180-00-117-3414 and 5180-00-611-7924 on the AFML website.

Section 2B—Providing Organizational Maintenance Services

2.11. Pre-Purchase Evaluation and Selection of Medical Equipment.

2.11.1. BMETs are consulted on each request to fill a medical equipment authorization requirement. BMETs evaluate and document equipment requirements according to AFMAN 23-110, Volume 5, Chapter 18, Attachment 6 (for investment equipment), and the guidelines in this chapter.

2.11.2. The extent of each evaluation depends on the installation requirements, maintenance requirements, and the cost of the equipment under consideration. Consider the trade-in value of the existing equipment when purchasing new equipment items. Also consider whether removal and/or installation should be included as part of the purchase price of the new system.

2.11.3. Medical equipment maintenance activities may ask for assistance in evaluating equipment systems from their regional MERC or AFMLO/FOE.

2.11.4. When the MTF commander establishes an Equipment Review and Authorization Activity (ERAA), the senior BMET, or maintenance officer when assigned, serves as a member to ensure technical considerations are an integral part of the authorization and procurement process (AFMAN 23-110, Volume 5, Chapter 18).

2.11.5. MEMO will ensure the purchase request includes, and the contracting agency requests, two copies of complete operating and service manuals that include installation instructions (if applicable), operating procedures, warranty, maintenance instructions, theory of operation, schematic drawings, illustrated parts breakdown, and listings of repair parts.

2.12. Evaluating Complex Equipment Systems . Use the following guidelines for evaluating complex equipment systems:

2.12.1. Clinical Evaluation. BMETs ensure the justification clearly specifies the purpose of the equipment system. Maintenance personnel, in cooperation with the requesting activity, will review the clinical requirements to ensure the equipment requested meets these requirements.

2.12.2. Technical Evaluation. BMETs review the proposed equipment system for compliance with accepted safety and performance standards. The evaluation should ensure the equipment requested is safe, reliable, and maintainable. BMETs should review technical evaluations of similar equipment published in *Health Devices*® and other nationally recognized sources that compare products. Evaluators consider and act upon the following:

2.12.2.1. Facility Interface.

2.12.2.1.1. Identify the facility interface requirements of each equipment system under consideration.

2.12.2.1.2. Evaluate the system's utility and floor space needs, waste generation, and unique structural demands.

2.12.2.1.3. Ensure the receiving department has asked facility management to initiate necessary work requests for the Base Civil Engineer (BCE).

2.12.2.1.4. Conduct formal pre-procurement surveys for fixed X-ray systems according to paragraph **2.27.3**.

2.12.2.1.5. Perform appropriate pre-procurement surveys for acquiring and installing systems such as sterilizers, automated clinical analyzers, dental units, overhead surgical lights, and patient monitoring systems.

2.12.2.1.6. Request the BCE determine whether the building can support the equipment or if modifications to the buildings are necessary.

2.12.2.2. System Interface. BMETs review and identify problems that could arise when interfacing the requested equipment system with existing systems.

2.12.2.3. Maintenance History. BMETs review the maintenance history of similar items using the historical maintenance report (HMR) and equipment data files (EDF).

2.12.2.4. Maintenance Support. The local medical equipment maintenance activity determines if it can maintain the equipment in-house or if PMEL, depot, or contract maintenance is required.

2.12.2.4.1. If the maintenance activity does not have the necessary skills or resources in-house, the activity determines what specialized training, space, and test equipment it needs.

2.12.2.4.2. Tuition cost for maintenance training should be included in the acquisition of the equipment when appropriate.

2.12.2.4.3. Analyze all factors when determining whether or not contract maintenance is a viable alternative. In some cases, contract maintenance services are more readily available, economical, or higher quality than those the maintenance activity can offer.

2.12.2.4.4. All maintenance contracts must be reviewed by the NCOIC of the maintenance activity at least 60 days prior to the expiration or renewal date of the contract. This review must validate the need to continue the existing service or modify the level of service needed to augment existing maintenance capabilities of assigned BMETs.

2.13. Initial Inspection. BMETs inspect all newly procured medical equipment before issuing the item to a using activity. BMETs also inspect all non-medical equipment used in patient locations as defined in AFI 41-203, *Electrical Safety in Medical Treatment Facilities*.

2.13.1. Ensure the correct item was delivered without damage, operates according to the manufacturer's specifications, and complies with applicable safety and performance standards.

2.13.2. Perform an initial preventive maintenenace inspection, electrical safety check, calibration and certification as required.

2.13.3. When contractor installation is required, ensure the contractor correctly installs the equipment and verifies proper operation.

2.13.4. Maintain verification of system calibration provided by the manufacturer and report any discrepancies to the MEMO office.

2.13.5. Document identification data, initial leakage current, and measurements of performance and calibration parameters on the work order or on an appropriate calibration form.

2.13.6. Review the relevant contracts and literature for warranty provisions.

2.13.7. Complete the warranty registration data, if applicable, and forward it to the manufacturer. ***NOTE:*** Device tracking requirements of the Safe Medical Device Act (SMDA) may require devices to be registered as part of the warranty process.

2.13.8. Identify and account for each new item.

2.13.8.1. Affix a MEMO index number to each maintenance significant item. If size of the item is too small to affix an index number (e.g. dental hand pieces), ensure serial numbers are recorded in MEDLOG/DMLSS as a cross-reference to the index number.

2.13.8.2. Mark the equipment according to AFMAN 23-110, Volume 5, Chapter 18.

2.13.8.3. Load historical and quality assurance data into MEDLOG/DMLSS.

2.13.8.4. Ensure MEDLOG/DMLSS reflects the proper medical device code for the item.

2.13.8.5. Establish an EDF in equipment control number (ECN) sequence as prescribed in paragraph **2.43**.

2.13.8.6. Place a copy of the contract or purchase order, a copy of the warranty registration, and the initial inspection work order in the EDF.

2.13.8.7. File one copy of the operator's manual and all maintenance manuals.

2.13.9. Determine and acquire repair parts as appropriate. Obtain optimum quantities of repair parts based on availability of blanket purchasing agreements (BPA) for repair parts, criticality of the item, number of identical systems, and preventive maintenance requirements.

2.13.10. Order any new test equipment or calibration devices required.

2.13.11. Non-medical electrical equipment requires an initial safety inspection and may require subsequent scheduled safety inspections depending on the area of use.

2.13.12. BMETs conduct an initial inspection of leased, loaned, consigned, or privately owned medical equipment as outlined in AFI 41-203, *Electrical Safety in Medical Treatment Facilities*.

2.14. Warranties and Guarantees.

2.14.1. Medical equipment maintenance administers the warranty and guarantee program for medical equipment.

2.14.2. Warranty provisions should be enforced whenever possible. Care should be taken to prevent actions that would void the warranty.

2.14.3. In some cases, especially at overseas locations, it may not be economical to enforce warranties. Evaluate warranty provisions to determine appropriate course of action.

2.14.4. AFMAN 23-110, Volume 5, Chapters 9, 16, and 18, contain additional information on warranties and guarantees.

2.14.5. Contingency hospitals are not required to maintain a warranty and guarantee program on equipment received during the initial assembly process.

2.14.6. Assets received from AFMLO/FOW or other centrally procured process that are found to be defective upon initial inspection, or for a period of one year thereafter, will be documented as a Report of Discrepancy (ROD) through AFMLO/FOW, according to AFMAN 23-110, Volume 5, Chapter 9.

2.15. Scheduled Maintenance.

2.15.1. A scheduled maintenance program ensures optimum performance, safe operation, minimum downtime, and maximum useful life from each medical equipment system.

2.15.2. Scheduled maintenance actions for equipment have four categories: (1) inspection (INSP), (2) preventive maintenance (PM), (3) calibration/certification (CAL), and (4) scheduled parts replacement (SPR).

2.15.3. Scheduled maintenance provides regular and systematic servicing, verification of performance and safety, and detection and replacement of worn or failing components before a serious problem develops.

2.15.4. AFMLO/FOE establishes minimum scheduled maintenance requirements based on the manufacturer's recommended frequencies, established industry norms, area of use (MTF vs. WRM), experience, and patient risk assessment. These scheduled maintenance requirements are found in the Device Code Listing on the AFML website.

2.15.4.1. BMETs perform scheduled maintenance at these minimum frequencies but are authorized to increase scheduled frequencies when appropriate.

2.15.4.2. Medical equipment maintenance activities may not reduce frequencies without the written approval of AFMLO/FOE. Send requests for reduced frequencies to AFMLO/FOE (**mailto:afmlo/FOE@ft-detrick.af.mil**) explaining why changed schedules will not adversely affect patient care or operator and patient safety. Coordinate any approved reduction through your local Environment of Care Committee.

2.15.5. BMETs use manufacturer's literature, health devices inspection and preventive maintenance system (published by ECRI), and work order literals when performing scheduled maintenance actions.

2.15.6. When distributing the scheduled maintenance workload, BMETs should give appropriate consideration to peak workloads and periods when personnel may be absent due to leaves, holidays, deployments, exercises, etc.

2.15.7. Schedule PM and calibration action dates concurrently in order to increase efficiency.

2.16. Preventive Maintenance (PM).

2.16.1. Preventive maintenance is the systematic care, servicing, and inspection of equipment to maintain it in a safe and serviceable condition. The intent is to prevent, detect and correct minor faults before they develop into major defects.

2.16.2. Preventive maintenance is the joint responsibility of equipment operators and maintenance personnel.

2.16.3. Equipment operators perform user maintenance as defined in paragraph **2.2.3** and will not attempt repairs beyond those authorized in the operator's manual.

2.16.4. The BMET performs the following on each regular inspection of equipment if applicable:

2.16.4.1. Clean the equipment in areas not normally accessible to the operator. Remove corrosion, dirt, solutions, dust, lint, blood, or deposits. Clean internal components including blowers, filters, fans, and coils.

2.16.4.2. Align and tighten all moving components not specifically covered in the calibration procedures, such as doors, drawers, panels, shelves, catches, latches, casters, and hinges.

2.16.4.3. Align and tighten all fixed components of equipment including chassis, stops, door pulls, handles, knobs, and motor mounts.

2.16.4.4. Lubricate the unit, including motors, gears, bearings, casters, and other moving components. Use only non petroleum-based, nonflammable lubricants on equipment that uses oxygen.

2.16.4.5. Inspect and service batteries and battery compartments.

2.16.4.6. Adjust electronic and mechanical components as necessary.

2.16.4.7. Service all consumable devices such as filters and tubing.

2.16.4.8. Evaluate how well the user is maintaining the equipment and notify the user of equipment condition.

2.16.5. During PM inspections, the BMET performs a general safety inspection on all equipment and an electrical safety inspection, if applicable, according to AFI 41-203, *Electrical Safety in Medical Treatment Facilities*. In addition to pass or fail, numerical results of the electrical safety inspections must be recorded on or attached to the scheduled work order.

2.16.6. When an item of equipment fails to meet the appropriate safety standards, affix an AF Form 979, **Danger Tag**, to the equipment until the problem is corrected.

2.16.6.1. The BMET notifies the department chief and safety officer about the danger tag. See AFOSH Standard 91-45, *Hazardous Energy Control and Mishap Prevention Signs and Tags*, for the proper use of mishap prevention tags.

2.16.6.2. The BMET removes the item from use unless the medical staff determines the equipment must remain in service for the benefit of a patient.

2.16.6.3. If the equipment must remain in use, make every effort to replace the defective equipment with a similar item that meets the safety standards. If you cannot obtain a replacement, carefully document the decision to keep the defective equipment in service and remove the equipment from service immediately when it is no longer required.

2.16.6.4. Maintain on file a copy of the written explanation and the associated work order for the life of the device.

2.16.7. During scheduled maintenance, BMETs should evaluate the condition of equipment and verify that the condition code accurately reflects the current condition of the equipment. This code helps determine whether or not the item should appear on the 3-year equipment budget requirements list. The condition code also affects the equipment item’s maximum repair allowance (MRA) by adjusting the percent of life remaining.

2.16.8. Risk-Based Preventive Maintenance.

2.16.8.1. AFMLO/FOE will annually review and implement changes to preventive maintenance inspection intervals through coordination with Joint Medical Logistics Functional Development Center (JMLFDC) and Sister services. Prior to centralized implementation, AFMLO/FOE will notify all activities 180 days in advance.

2.16.8.1.1. Equipment risk, level of maintenance required, and the equipment history (i.e. percentage of beneficial inspections) will be considered in establishing required preventive maintenance inspection frequencies. A beneficial inspection is defined as a preventive maintenance inspection that reveals a condition beyond acceptable ranges that is not apparent to the typical user. The number of beneficial preventive maintenance inspections will be collected through completed work orders in MEDLOG/DMLSS.

2.16.8.1.2. Equipment risk will be classified high, medium, or low risk. This determination will follow the ECRI Inspection and Preventive Maintenance Program.

2.16.8.1.3. Level of maintenance required will be classified as high, medium, or low based on recommended manufacturer's procedures.

2.16.8.1.4. Equipment risk level, required maintenance level, and the percentage of beneficial preventive maintenance inspections will be used to recommend changes to the current preventive maintenance intervals.

2.16.8.2. MTF clinical engineering/medical equipment maintenance will review and implement AFMLO/FOE recommendations for application at base level as follows:

2.16.8.2.1. Recommendations from AFMLO/FOE to extend preventive maintenance intervals beyond one calendar year require coordination and approval of the Environment of Care Committee prior to implementation.

2.16.8.2.2. If scheduled maintenance is eliminated, the equipment management plan will be updated to reflect those devices as receiving corrective maintenance only. These changes will be coordinated with and approved by the MTF's Environment of Care Committee.

2.16.8.2.3. Verify the equipment identified matches actual MTF records before changes in maintenance schedules are implemented.

2.16.8.2.4. Recommendations to extend or eliminate preventive maintenance intervals will be implemented within 60 days.

2.16.8.2.5. Medical equipment maintenance activities wanting to extend preventive maintenance intervals on items not yet approved for extension must submit their request to AFMLO/FOE for approval. ***NOTE:*** Prior to submission to AFMLO/FOE, the MTF's Environment of Care Committee must approve the request.

2.17. Calibration/Certification.

2.17.1. Calibration/Certification is the measurement and adjustment of various device parameters to ensure its accuracy within prescribed standards.

2.17.2. BMETs document all calibrations on the appropriate form or work sheet and retain the form in the EDF according to paragraph **2.43**.

2.17.3. BMETs enter the appropriate information for a completed calibration into the MEDLOG/DMLSS system or on the work order form.

2.17.4. Individuals performing scheduled maintenance procedures must affix a completed AF Form 4368, Scheduled Maintenance and Certification Sticker, on the item.

2.17.4.1. In the event that the MTF is governed by or shared with another Service, must affix a completed DD Form 2163, Medical Equipment Verification Certification, on the item. If the MTF is governed by or share with another Service, an alternative method to label equipment for scheduled maintenance may be locally directed, however the MTF must obtain an exception waiver from AFMOA/SGAL for use of the alternative method. The request for the waiver must include a complete justification and any prescriptive Service regulations, policies, or guidance. Granting of the waiver will only apply to assets used within the MTFs and does not extend to WRM, AE, ANG, or AFRC (i.e., deployable). Unless a permanent exception waiver is authorized in writing , use of locally developed or manufacturer forms is not authorized.

2.17.4.2. For items with inadequate surface area to physically or safely fit the AF Form 4368, AFTO Form 394, TMDE Certification Tag, may be used. Affix the tag in a location visible to the operator.

2.17.5. BMETs ensure Test, Measurement, and Diagnostic Equipment (TMDE) used for calibration/certification of medical equipment is calibrated IAW manufacturers' specifications, IAW TO 33K-1-100-1, Technical Manual Calibration Procedure for Maintenance Data Collection Codes and Calibration Measurement Summaries, and this instruction. Local precision measurement equipment laboratory (PMEL) activities calibrate most TMDE used by BMETs according to paragraph 2.52. TMDE that PMEL cannot calibrate or certify must be periodically calibrated or certified by the manufacturer or other entity using standards traceable to the National Institute of Standards and Technology.

2.17.5.1. The baseline for all test equipment used to validate the proper operation and calibration of devices within the Air Force Medical Service (AFMS) inventory will be the original equipment manufacturers' (OEM) recommended frequency.

2.17.5.2. TO 33K-1-100-1 and AFI 41-201 may augment manufacturers' requirements so long as any additional requirements do not risk compromising the accuracy and/or longevity of the TMDE. Where conflict exists between these guidance sources, the most frequent inspection period will be used. Intervals that exceed those of the OEM may not be used.

2.17.5.3. In the event that PMEL recommends more frequent intervals or the equipment's Historical Maintenance Record indicates a need for more frequent calibration verifications, the local BMET is authorized to align the equipment's inspection cycle accordingly in DMLSS.

2.17.5.4. In some instances this may require the same type of test equipment from two or more vendors to have different intervals.

2.17.5.5. This policy only applies to test equipment and may not be interpreted as applying to any other class of medical or non-medical device.

2.17.6. After any calibration involving electrical components of a system, the BMET must perform a safety inspection according to AFI 41-203, *Electrical Safety in Medical Treatment Facilities*, and a general safety inspection before releasing the equipment item.

2.18. Unscheduled Maintenance and Repair.

2.18.1. Unscheduled maintenance involves those actions necessary to restore normal function, safety, performance, and reliability to malfunctioning medical equipment. BMETs enter all requests for unscheduled maintenance in the MEDLOG/DMLSS system.

2.18.2. If the on-line system is not working or the facility does not have a MEDLOG/DMLSS system, the BMET must document a manual work order request and enter it on an unscheduled work order register according to paragraph **2.41**.

2.18.3. BMETs assign a priority to each request to help in scheduling and assigning work.

2.18.4. While the priority of repair is determined locally, consider the type and importance of the equipment, availability of alternate equipment, and the effect of downtime on the mission.

2.18.5. If the repair involves ordering repair parts, the BMET will list all required parts on the work order and enter this information in the MEDLOG/DMLSS system.

2.18.6. Sections with manual systems will document the part needed on the manual work order and order it through normal supply channels. BMETs with manual systems will establish a method to monitor the status of work orders awaiting parts.

2.18.7. BMETs initiate the appropriate request for contract services if the equipment requires contract, warranty, or depot repair service.

2.18.8. After completing any unscheduled maintenance, BMETs complete an operational check of the equipment.

2.18.9. BMETs complete an electrical safety check according to AFI 41-203, *Electrical Safety in Medical Treatment Facilities*, if the unscheduled maintenance could have affected any electrical components of the equipment item. Complete the electrical safety check before releasing the equipment item to an equipment operator.

2.18.10. When the repair work is completed, the BMET signs and completes the work order.

2.18.11. For manual systems, the BMET completes the repair action section of the manual work order and processes the form according to paragraph **2.41**.

2.18.12. The individual accepting the repaired item from the medical equipment maintenance activity will sign the work order acknowledging receipt and repair.

2.18.13. BMETs who must perform unscheduled maintenance on fixed/installed equipment follow the lockout/tag out policies and procedures in AFOSH Standard 91-45, *Hazardous Energy Control and Mishap Prevention Signs and Tags*.

2.19. Limits on Repair and Overhaul Expenditure.

2.19.1. BMETs use the maximum repair allowance (MRA) as a guide for determining whether it is feasible to repair an item rather than replace it when repairs are likely to be expensive.

2.19.2. The MRA applies to each repair or overhaul performed on a medical device and is determined by the equipment status code.

2.19.3. One-time and cumulative repair limits for medical devices are as follows:

2.19.3.1. The one-time MRA must not exceed 65 percent of the acquisition cost of the item. ***NOTE:*** For DMLSS users, the MRA is calculated slightly different. The MRA is 65 percent of the acquisition cost until the item reaches 65 percent of its life remaining. At that point, the MRA equals the acquisition cost times the percentage of life remaining. Once the item has only 10 percent remaining life, the MRA is a straight 10 percent of the acquisition cost until replaced. Using this calculation method, the MRA gradually decreases as the item gets older.

2.19.3.2. The cumulative cost of repair must not exceed 125 percent of the acquisition cost of the item.

2.19.3.3. Exceptions. Dental/surgical hand pieces, X-ray tubes, fiber optic equipment, and other items that can be rebuilt to essentially a new item are exempt from the cumulative MRA. The one-time limit for these exempted items is 75 percent of the current replacement cost of the item regardless of its age. ***NOTE:*** When refurbishing an item to a like-new condition, enter the date and cost of the refurbishment and the original acquisition date in the technicians' notes of the historical maintenance record (HMR). Change the condition code to "S" and the acquisition date to the date you finished refurbishing the item.

2.19.4. MRA may be exceeded when an item is needed immediately to save life, prevent suffering, or to meet urgent operational requirements that cannot be satisfied through normal resupply procedures. In such circumstances, BMETs document the Medical Logistics Flight Commander's approval to exceed the MRAs on the work order.

2.19.5. BMETs may not defer or omit necessary repairs in order to reduce total repair costs to within permissible limits.

2.20. Accounting for and Storing Repairable Property.

2.20.1. BMETs record the work required and the current status of the repair action on the work order.

2.20.2. Each item will be tagged with AFTO Form 350, **Repairable Item Processing Tag**. BMETs shall fill out the detachable portion of the tag (Part II) and give it to the individual turning the equipment in for service. The property custodian files the tag with their records while the item is under repair and surrenders the tag to the medical equipment maintenance activity when the item is returned.

2.20.3. Store each item in a secure designated area in a neat and orderly manner.

2.20.4. Maintain a current log of items given to MEMO for contractor repair.

2.21. Reporting and Review.

2.21.1. BMETs immediately report to the Medical Logistics Flight Commander (MLFC) when items reported as broken are critical to the operation of a department, such as specialized imaging devices or automated clinical analyzers that may seriously affect patient care.

2.21.2. At the end of each month, maintenance supervisors will review equipment awaiting repair or repair parts for more than 30 days to determine the cause of the delay and ensure corrective action is taken.

2.21.3. The MLFC will develop local procedures for conducting and documenting a monthly review of all work orders outstanding for 60 days or more.

2.21.4. The MLFC performs this review or appoints, in writing, the clinical engineering officer to perform the review.

2.21.5. Medical logistics activities can use reports from the MEDLOG/DMLSS system to identify outstanding work orders. Activities not using MEDLOG/DMLSS must develop local methods to identify outstanding work orders.

2.21.6. The reviewer annotates on the report, indicating why the repair has been delayed and recommends corrective actions.

2.21.7. Maintain the annotated reports for one year.

2.22. Recommending Equipment for Replacement.

2.22.1. BMETs should recommend that equipment users consider replacing equipment under any of the following conditions:

2.22.1.1. Changes in technology provide equipment that will be more economical to operate and maintain, clinically more acceptable, or technologically improved.

2.22.1.2. The equipment cannot be maintained because repair parts or service are not available.

2.22.1.3. The failure rate is excessive.

2.22.1.4. The HMR indicates that the cost to repair will exceed the MRA.

2.22.2. For MTFs using MEDLOG, BMETs should review the 3-year equipment budget requirements list (see AFMAN 23-110, Volume 5, Chapter 18) and make recommendations based on historical maintenance data and how well the medical equipment maintenance activity can continue to maintain the equipment in a serviceable condition. ***NOTE***: Expendability code "1" equipment items will not appear on the 3-year equipment budget requirements list. Local procedures shall be developed to ensure this equipment is reviewed. AFMAN 23-110, Volume 5, Chapter 2 provides guidance on coding low threshold items with expendability code "2". For MTFs using DMLSS, BMETs have the option of viewing the equipment replacement report from one to five years.

2.22.3. For activities that do not have automated equipment historical records, the medical equipment maintenance activity helps equipment custodians and MEMO prepare a list of equipment that should be replaced in the coming fiscal year.

2.22.4. Equipment custodians and MEMO prepare the requirements list annually before budget submission. MEMO submits the list to the MLFC.

2.23. Equipment Turn-Ins.

2.23.1. BMETs inspect medical equipment turned in by using activities and determine whether the item is serviceable or unserviceable by reviewing the history of the equipment and the present condition of the item.

2.23.2. BMETs tag the item with DD Form 1574, **Serviceable Tag - Materiel** (Yellow), DD Form 1577-1, **Unserviceable (Condemned) Tag - Materiel** (Red), or DD Form 1577-2, **Unserviceable (Repairable) Tag – Materiel** (Green).

2.23.3. Use the Federal condition code in AFMAN 23-110, Volume 5, Chapter 2, Attachment 16 and on the AFML website to complete the tag. This attachment includes a table that converts repairman's condition codes to Federal codes.

2.23.4. Provide MEMO any excess service literature or operator manuals and the equipment data file.

2.23.5. BMETs will identify associated repair parts and turn in as excess if no longer required.

2.23.6. BMETs will review associated test equipment and calibration devices and turn in as excess if no longer required.

2.23.7. BMETs will delete MEDLOG/DMLSS component-to-end-item relationships before turn-in of maintenance items.

2.23.8. Maintenance activities may cannibalize or disassemble excess or unserviceable medical equipment for serviceable parts or components needed in the foreseeable future before turning the equipment in to the Defense Reutilization and Marketing Office (DRMO).

2.23.9. BMETs must document all repair parts obtained by cannibalization by gaining them into the repair parts inventory.

2.23.10. BMETs will report unserviceable centrally procured equipment to AFMLO/FOE. BMETs will report unserviceable PMI equipment to AMC/SGSL and AFMLO/FOE.

2.23.11. Prior to sending any equipment item to DRMO or reporting it as excess, all PHI must be removed. If PHI cannot be removed, all storage media must be cleared and sanitized IAW AFSSI 8580, Remanence Security. If the unit was fully functional prior to cleansing the drive, place a DD Form 1577-2 on the item and annotate that application software must be reinstalled, and the unit fully tested, before further operation.

2.24. Managing the Equipment Environment and Utilities. In addition to the requirements for equipment servicing, medical equipment maintenance activities are responsible for the following tests and inspections of the environment in which the equipment is used and the utilities supplied to the equipment.

2.24.1. BMETs test and calibrate ground detection alarm systems and line isolation monitors.

2.24.1.1. Perform these tests according to NFPA 99, *Health Care Facilities*, AFI 41-203, *Electrical Safety in Medical Treatment Facilities*, and "Health Devices, Inspection and Preventive Maintenance System®," published by ECRI.

2.24.1.2. BMETs record test results in duplicate on AF Form 502, **Ground Monitor Test Record**.

2.24.1.3. The approving authority (anesthesiologist, chief of surgery, or other officer) signs and keeps the original copy when complete.

2.24.1.4. File the second copy in the medical equipment maintenance activity.

2.24.1.5. The BMET immediately reports any discrepancies to the officer in charge of surgery.

2.24.1.6. Report defects in electrical power systems through the facility manager to the base civil engineer, who is responsible for the repair of ground fault detection systems and line isolation monitors.

2.24.2. Test ground fault circuit interrupters according to AFI 41-203, *Electrical Safety in Medical Treatment Facilities*.

2.24.3. Piped medical gas or vacuum system outlets and their monitoring panels are considered real property installed equipment. The base civil engineer is responsible for maintaining and troubleshooting these systems. ***NOTE:*** This service is typically contracted out to a qualified contractor experienced in piped medical gas and vacuum systems.

2.24.3.1. Medical equipment maintenance personnel observe, evaluate, and report any malfunctions of these systems through the facility manager to the base civil engineer for corrective action.

2.24.3.2. Once repairs are completed, medical equipment maintenance personnel verify it functions according to specifications.

Section 2C—Managing X-Ray Systems

2.25. General Guidance on Managing X-Ray Systems.

2.25.1. The BMET plays an essential role in the life cycle management of medical X-ray systems. BMETs assigned to medical activities conduct organizational maintenance of medical X-ray systems as defined in paragraph **2.29**.

2.25.2. Regional MERCs provide intermediate level maintenance of X-ray systems, including pre-procurement surveys, acceptance inspections, annual calibration or certification, and technical assistance and consultation services.

2.25.3. BMETs assigned to MERCs who provide intermediate maintenance of X-ray systems should complete courses J3AZR4A271-024, **Advanced Diagnostic Imaging Systems**, and J3AZR4A271-025, **X-ray Pre-procurement/Acceptance Inspection**. BMETs who have not completed these courses must complete on-the-job training at the 5-skill level before performing intermediate maintenance of X-ray systems.

2.26. Certification of X-Ray Systems.

2.26.1. BMETs must ensure all components of diagnostic medical X-ray systems (which includes dental X-ray systems) are certified by the Food and Drug Administration (FDA), Department of Health and Human Services, Center for Devices and Radiological Health (CDRH), according to Title 21, Code of Federal Regulations (CFR), Parts 1000 and 1020.

2.26.2. Facilities will not purchase uncertified X-ray systems. BMETs install, certify, maintain and repair medical X-ray systems according to 21 CFR 1020 and the manufacturer's instructions. Personnel who install, adjust, and test diagnostic X-ray systems or their major components are classified as assemblers under the provisions of 21 CFR 1020. Within the Air Force, personnel holding AFSC 4A251/71/91, or civilian equivalents may act as assemblers.

2.26.3. Qualified individuals who install X-ray equipment under contract with the Government or under control of a prime contractor are considered assemblers and are subject to the provisions of 21 CFR 1020.

2.26.4. When an assembler installs one or more certified components of diagnostic X-ray equipment, the assembler must complete FDA Form 2579, **Report of Assembly of a Diagnostic X-ray System**. Obtain these forms from: Center for Diseases and Radiological Health (CDRH), Office of Compliance/Food and Drug Administration, 2098 Gaither Road (HFZ-322), Rockville, MD 20850, (301) 827-4555.

2.26.5. Air Force assemblers installing equipment within the region of applicability (50 states, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, and American Samoa) must send the original (white copy) to the CDRH (address above). The state agency copy (yellow copy) of FDA Form 2579 must be forwarded to AFMLO/FOE, 1423 Sultan Drive, Suite 200, Fort Detrick, MD 21702-5006, within 30 days of the installation. Keep the pink copy in the EDF for the X-ray system. ***NOTE:*** The reporting requirement in this paragraph is exempt from licensing in accordance with AFI 33-324, *The Information Collections and Reports Management Program; Controlling Internal, Public, and Interagency Air Force Information Collections*.

2.26.6. Contractor assemblers installing equipment must provide the original of FDA form 2579 directly to the CDRH within 15 days of installation and give the purchaser copy (pink copy) to the MTF to file in the EDF in the medical equipment maintenance activity.

2.26.6.1. The medical equipment maintenance activity forwards a duplicate copy (carbon or reproduction) of FDA Form 2579 to AFMLO/FOE.

2.26.6.2. The CDRH does not require FDA Form 2579 for installations outside the region of applicability.

2.26.6.3. Medical materiel activities located outside the region of applicability must ensure the local BMET or contractor prepares FDA Form 2579 to be forwarded to AFMLO/FOE when they install a certified component.

2.26.6.4. When a contractor does not complete the form, the senior member of the military acceptance team completes and signs the form. Annotate on the form the name of the company responsible for the installation.

2.26.7. The medical equipment maintenance activity retains a copy of FDA Form 2579 until all components listed on it have been relocated, transferred to another facility, or permanently removed from service.

2.26.8. Assemblers who reinstall certified component systems when the systems are relocated or transferred, or who replace or add certified components to an existing system, must provide AFMLO/FOE with FDA Forms 2579 as prescribed previously in this paragraph. ***NOTE:*** X-ray tubeheads are an exception to this requirement.

2.27. Procuring X-Ray Systems.

2.27.1. Overview.

2.27.1.1. Procurement of a stationary X-ray system is a long, complex process consisting of identification of need, pre-procurement evaluation, approval, contract award, delivery, installation, acceptance, and warranty.

2.27.1.2. Under normal circumstances, initiate plans to replace an X-ray system one year before the system is actually required. One year is normally adequate time for budgeting and planning of major room modifications (electrical distribution system, structural modifications, and other utilities as required).

2.27.1.3. Designate a specific individual as the organization's project officer. Notify the contracting office if you have to change the project officer.

2.27.2. Identifying Needs.

2.27.2.1. The medical equipment maintenance activity or the radiology department identifies the need to replace an existing stationary diagnostic X-ray system.

2.27.2.2. As soon as the need is identified, representatives from medical materiel, medical equipment maintenance, radiology (a radiologist when assigned), resource management, facility management, and the base radiation protection officer should be involved in the planning process.

2.27.2.3. The regional MERC may attend planning meetings depending upon the experience of assigned personnel, the sophistication of the proposed system, and the complexity of the proposed facility modifications.

2.27.2.4. Medical equipment maintenance should get copies of AFMLO guidance document 79-6, the current HMR, previous pre-procurement survey of existing X-ray system, radiation protection survey, EDFs, latest MERC trip report, and any contract maintenance data for input to the planning process.

2.27.2.5. The planning process should include consideration of age, reliability, maintainability, history-to-date expenditures of man-hours and repair costs, projected increases/decreases in the work load, obsolescence of the current system, need for additional clinical capabilities, and "extended installation" or "turnkey installation" to accomplish required facility modifications.

2.27.2.6. Develop a list of the system requirements, including all required options. Contact several X-ray manufacturers for brochures and product data on systems that meet the clinical requirements.

2.27.2.7. Periodically during the acquisition cycle, this steering group should reconvene to revise target dates, assess progress, and respond to outside inquiries.

2.27.3. Pre-Procurement Technical Evaluation Surveys.

2.27.3.1. A pre-procurement survey must be accomplished before the authorization or procurement of any stationary diagnostic/therapeutic medical X-ray system. This requirement also applies to the relocation of any in-use stationary X-ray system.

2.27.3.2. Prospective vendors may conduct pre-procurement surveys by providing "no cost" electrical and room modification details and cost estimates. Ensure the vendors understand this service is to be provided at no cost to the government.

2.27.3.3. If locally assigned maintenance personnel or the regional MERC conducts the pre-procurement survey, instructions and format guide is provided in AFMLO Guidance Document 79-6, *Procedures for Performance and Documentation of X-ray Pre-Procurement Surveys*. AFMLO Guidance Document 79-2, *Power Supply Evaluations for X-Ray System Installations* is available to assist in the determination of power requirements. These documents are available on the AFML website.

2.27.3.4. Individuals with AFSC 4A271/4A291, military clinical engineers, or civilian equivalent may conduct these surveys. These individuals should have attended the 382nd Training Squadron course J3AZR4A271025, **Imaging Procurement/Acceptance Procedures**. If local personnel are not capable of performing the survey, the regional MERC should be contacted to perform a technical support visit.

2.27.4. Approval Process.

2.27.4.1. If local personnel performed the pre-procurement survey, the completed survey is forwarded to the regional MERC for review and approval.

2.27.4.2. After review, the MERC returns the survey to the originating activity for further processing as outlined in paragraphs **2.27.4.4** and **2.27.4.4**.

2.27.4.3. If the pre-procurement survey is for relocating an existing system, the MLFC may initiate the relocation within MAJCOM guidelines. If the survey is for acquiring a new system, the survey results and recommendations are reviewed by the originating activity, and any outstanding issues are resolved locally.

2.27.4.4. Prepare AF Form 601, **Equipment Action Request**, and submit it to MAJCOM according to AFMAN 23-110, Volume 5, Chapter 18. The following information should also be included in the package: 13-point justification, pre-procurement technical survey (completed by vendor, MERC, or local personnel), MERC review letters, historical maintenance records (HMR), completed checklist from AFMAN 23-110, Volume 5, Chapter 18, Attachment 3, and sole or limited source justification, if required.

2.27.4.5. When the AF Form 601 is approved by the MAJCOM and AFMLO/FOE, it is returned to the MAJCOM as an approved, unfunded equipment requirement. Projects will be funded according to MAJCOM priorities. MAJCOMs notify AFMLO/FOE to initiate procurement action.

2.27.5. Contract Award.

2.27.5.1. After contract award, the contracting office forwards a copy of the delivery order to the customer.

2.27.5.2. Maintain a copy of the delivery order in medical logistics. Inform the project officer about the contractual provisions.

2.27.5.3. Within 30 days of the contract award, the contractor performs an installation site visit, surveys power and other utility requirements, and provides the MLFC with complete layout plans, room preparation drawings, and instructions. ***NOTE:*** In the event the contractor fails to provide the required data, notify the contracting office by e-mail or letter. Send a copy to AFMLO/FOE.

2.27.5.4. Facility management, base civil engineer, medical equipment maintenance, and radiology personnel review the contractor's drawing and plans to ensure the equipment layout will meet the clinical requirements, the contractor isn't requesting unnecessary construction or room modifications, and existing conduits, cable raceways, and other fixtures are used as much as possible.

2.27.5.5. The project officer and the MLFC closely monitor the progress of commercial contractors and BCE in preparing rooms to receive X-ray systems. The MLFC documents any significant deviations from established deadlines and technical specifications and informs the MAJCOM, AFMLO/FOE, and the contracting office of these deviations.

2.27.6. Installation.

2.27.6.1. The X-ray equipment manufacturer typically performs the installation. Activities located in areas where this type of installation is not feasible must use local BMETs or the regional MERC to install X-ray systems.

2.27.6.2. In either case, encourage local maintenance personnel to participate in the system installation as long as their participation does not void any of the provisions of the installation contract.

2.27.7. X-Ray Systems Acceptance Inspections.

2.27.7.1. Conduct acceptance inspections on all newly installed diagnostic medical X-ray systems. AFMLO/FOE provides the inspection protocol and report format.

2.27.7.2. Regional MERCs perform acceptance inspections on all stationary medical X-ray systems and forward the original of the acceptance inspection report to the contracting office. Provide AFMLO/FOE, the receiving organization, and the inspecting activity a copy of the report and all attachments.

2.27.7.3. Local BMETs may perform acceptance inspections on mobile medical X-ray systems. The inspecting activity and the organization receiving the system should keep the acceptance inspection report until the system is removed from service.

2.27.7.4. Send to AFMLO/FOE one copy each of the electronic Radiographic or Post-Calibration Radiation Inspection Record, Radiographic or Post-Calibration Radiation Inspection Record - Fluoroscopic, for inspections performed on medical diagnostic X-ray systems during an initial X-ray acceptance inspection. Ensure the forms are entirely legible and clearly note all items that are not applicable. Mail the forms together with applicable copies of FDA Form 2579, Report of Assembly of a Diagnostic X-Ray System, to AFMLO/FOE within 30 days of completing the acceptance inspection.

2.27.7.5. During an acceptance inspection, inspect all applicable items according to the approved DoD X-ray acceptance inspection protocol. During re-inspections, only inspect areas that failed the initial inspection and areas that might have been affected by a corrective action on failed areas.

2.27.7.6. If you could not perform the radiation inspection because equipment malfunctions terminated the original inspection, provide the radiation inspection results obtained during the re-inspection as part of the re-inspection report.

2.27.7.7. The acceptance inspection report on any X-ray system requiring a re-inspection must include an itemized list of all costs (salary, per diem, travel, and other miscellaneous costs) incurred during the re-inspection. AFMLO Guidance Document 80-8, *Reimbursements for X-Ray Re-Inspections*, tells you how to be reimbursed for these costs.

2.27.7.8. BMETs conduct acceptance inspections of dental X-ray systems to ensure the installed equipment meets all manufacturer requirements.

2.27.8. Warranty Period for X-Ray Systems.

2.27.8.1. X-ray equipment warranties usually provide for various services during the first year of use. The warranty period should allow sufficient time for local activities to train 4A2X1 personnel to maintain and repair the new system. Requests for warranty repair are channeled through the medical equipment maintenance activity.

2.27.8.2. BMETs maintain copies of all service reports in the master record EDF.

2.27.8.3. The medical equipment maintenance activity notifies the contracting office and AFMLO/FOE if there are any problems obtaining repairs under warranty.

2.28. Radiation Protection Surveys.

2.28.1. A properly qualified health physicist must conduct a complete radiation protection survey when new X-ray facilities open for routine use.

2.28.2. These surveys may be included as part of the facility construction/modification contract or request them through bioenvironmental engineering (BEE).

2.28.3. When replacing X-ray equipment with similar capabilities and workloads, the health physicist or BEE evaluates shielding effectiveness and can approve interim use of the facility until the survey is completed.

2.28.4. In all cases, complete the radiation protection survey within 90 days of the acceptance date.

2.28.5. Any discrepancies in the radiation protection survey that may be attributable to the manufacturer are referred immediately to the manufacturer through the contracting agency.

2.28.6. For radiation protection surveys of devices that produce ionizing radiation, contact the appropriate regional medical physics support activity per AFI 48-148, *Ionizing Radiation Protection*.

2.28.7. Notify the base radiation protection officer when replacing any major component of an X-ray system. The radiation protection officer will make the determination whether a radiation protection survey is needed.

2.28.8. File copies of the radiation protection survey in the maintenance activity, the workplace case folder maintained by BEE, and the radiology department. The preparer furnishes additional copies of such reports to the MAJCOM, the regional MERC, and AFMLO/FOE.

2.28.9. Medical equipment maintenance activities document all steps taken to resolve the discrepancies noted on radiation protection surveys.

2.28.10. Medical equipment maintenance activities forward a letter to the regional MERC, MAJCOM, and AFMLO/FOE indicating that they took corrective action within 45 days of receiving the report. The Medical Support Squadron commander signs the letter and includes information from radiology, the bioenvironmental engineer, and medical equipment maintenance, as appropriate. Keep a copy of all such letters on file with the report.

2.29. Maintaining X-Ray Systems. The organizational maintenance activity and the regional MERC are jointly responsible for scheduled and unscheduled maintenance of X-ray systems.

2.29.1. Maintenance Responsibilities and Procedures.

2.29.1.1. The local medical equipment maintenance activity perform all required preventive maintenance on X-ray systems prior to the regional MERC's scheduled support visit. This includes testing, verifying, and adjusting collimators, spot film devices, beam limiting devices and source-to-image distance (SID) indicators.

2.29.1.2. Maintain records and films supporting these inspections in the EDF for review by the MERC team.

2.29.1.3. Local BMETs also perform all mechanical inspections, including inspection of all counterweight cables and locks.

2.29.1.4. The local maintenance activity must report equipment malfunctions that affect scheduled calibrations to the MERC superintendent before scheduled MERC visits.

2.29.1.5. The local BMET and the MERC team will jointly complete PM inspections (e.g. collimators) and correct problems discovered during annual calibrations. The MERC will perform required repairs if possible. If the equipment cannot be repaired due to a lack of repair parts, the local base maintenance activity performs the repairs at a later date and reports back to the MERC in accordance with paragraph **3.5.5**.

2.29.1.6. The MERC will document problems of this type in the technical trip report and will also include comments on the adequacy of the local maintenance X-ray calibration and PM program, when appropriate.

2.29.2. Calibration Responsibilities and Procedures.

2.29.2.1. The regional MERC oversees the annual calibration of diagnostic X-ray systems.

2.29.2.2. The MERC will document the calibration on an **X-Ray Verification/Certification Worksheet**, and the accompanying post-calibration radiation inspection (PCRI) on a **PCRI Worksheet**.

2.29.2.3. MERC chiefs may delegate, in writing, limited calibration/certification responsibility to base level maintenance activities as long as they have the necessary test equipment and trained personnel. Delegations will not exceed a one-year period. The MERC will annually assess how well each base medical equipment maintenance activity can comply with current calibration/certification standards before renewing the delegation of this duty.

2.29.2.4. Calibration/certification of diagnostic X-ray systems, except during initial warranty periods, will not be accomplished by commercial contract without notification and concurrence of the regional MERC. When someone other than the MERC (such as the local BMET or a contractor) performs the calibration, the MERC will conduct an annual PCRI.

2.29.2.5. Report unsatisfactory performance of a system under commercial contract to the appropriate contracting officer.

2.29.2.6. AFMLO/FOE will provide guidance on diagnostic X-ray calibration/certification and PCRI procedures upon request.

2.29.2.7. The regional MERC forwards copies of all X-ray calibration/PCRI results to the medical equipment maintenance activity for filing in the EDF, and to the regional physicist IAW AFI 48-148, *Ionizing Radiation Protection*.

2.29.2.8. A complete file on calibration consists of the original installation calibration results and copies of calibration and PCRI records.

2.29.2.9. In all instances, the facility will maintain a baseline calibration record or the original acceptance inspection on file for the life of the system.

2.29.2.10. The regional MERC compares calibration results to the baseline and previous calibrations or PCRI records and takes corrective action when excessive differences are noted.

2.29.3. ECN/Serial Number Control of X-Ray Systems. Provisions of 21 CFR 1020 require major components of X-ray systems be controlled by line item. To comply with this regulation, Air Force activities must establish serial number control of the following major components: tube housing assemblies, X-ray controls, X-ray high voltage generators, transformers, collimators, tables, cradles, film changers, chest stands, fluoroscopic imaging assemblies, spot film devices, image intensifiers, cephalometric devices, image receptor support devices for mammographic X-ray, and other components such as video monitors, video camera recorders, film cameras, cine cameras, and digital systems. Control will be established using procedures in paragraph **2.42** and AFCSM 41-230, Volume 2, *Medical Logistics System Users Manual*.

2.29.4. Managing X-ray Tube Heads. Defense Distribution Region West, Tracy CA, maintains a stock of loaner X-ray tube heads for most models and manufacturers of X-ray systems. Upon request (by telephone or e-mail), the medical equipment repair activity at Defense Distribution Region West will dispatch any available tube head to satisfy urgent base requirements. See paragraph **2.51** for procedures on sending X-ray tube heads to the depots.

Section 2D—Performing Quality Assurance

2.30. Modifying Medical Equipment.

2.30.1. A modification is a change in the design or assembly of an item to meet revised specifications, correct defects, or improve performance.

2.30.2. HQ USAF/SG may authorize modification of medical devices to correct design deficiencies, increase the equipment's effectiveness, increase the equipment's useful life, provide greater safety for patients and operating personnel, and reduce excessive maintenance.

2.30.3. BMETs will not modify or alter medical devices in a way that would change the item's essential characteristics or substantially compromise its compliance with manufacturer's specifications and Federal standards unless authorized or directed by the HQ USAF/SG.

2.30.4. AFMLO/FOE will publish directed medical equipment modifications in the Air Force Medical Logistics Letter (AFMLL) which is available electronically on the AFML website. ***NOTE:*** Electronic subscription to the AFMLL is available through the list server on the AFML website. It is mandatory that all MLFCs and non-commissioned officers in charge subscribe to the list server IAW AFI 41-214, *Air Force Medical Logistics Letter*.

2.30.5. AFMLO/FOE issues hazard alert messages if equipment requires emergency modifications.

2.30.6. BMETs accomplish all directed modifications within prescribed time limits and in strict accordance with the modification instructions.

2.30.7. At the discretion of the MTF commander, BMETs may make minor equipment modifications to meet local operating needs, and when such modifications do not change the essential characteristics, manufacturers' specifications, or Federal standard compliance of the item. ***NOTE:*** BMETs may not perform any modifications that may introduce a potential electrical or other safety hazard, even if the modification is considered minor.

2.30.8. If an item is satisfactorily serving the purpose for which it was designed, but use or testing show that its design, performance, maintenance upkeep, or safety features can be improved, the BMET may recommend the item for modification.

2.30.8.1. The recommendation must first be reviewed by the local medical staff to ensure the proposed modifications are compatible with operating requirements and equipment construction. Submit for review and evaluation only those modifications that show clear promise of improving an item.

2.30.8.2. The BMET prepares recommendations in letter format and forwards through the MAJCOM to AFMLO/FOE.

2.30.9. Before initiating any type of modification on medical equipment that fails to perform according to its designed purpose, the BMET will submit a medical materiel complaint in accordance with paragraph **2.35**. Electronic access to the Computerized Product Reporting System is available on the ECRI website at **http://www.ecri.org**.

2.31. Documenting Modifications.

2.31.1. BMETs must document all modifications in MEDLOG/DMLSS. BMETs keep all modification work orders in the EDF throughout the life of the item.

2.31.2. BMETs document modifications authorized by the HQ USAF/SG by annotating the technicians' notes section of the HMR. Write the letters MP (Modification Performed), followed by the issue number of the AFMLL in which the modification was published (for example, MP 3-94). Document modifications at non-automated accounts by annotating on AF Form 509, *Medical Equipment Maintenance Record*.

2.31.3. BMETs document changes on schematics and circuit explanations for the item receiving the modification.

2.31.4. BMETs document minor modifications performed at the discretion of the MTF commander by annotating the AF Form 509 or the technician's notes section of the HMR with the letters MP followed by the work order number (for example, MP 50780007).

2.31.5. Software updates will also be documented as modifications. Manufacturer directed/provided updates must be entered in DMLSS by creating an unscheduled work order. Equipment notes and work order notes must be updated with the current version and date of update. Previous equipment notes (regarding software or firmware revisions) can be removed.

2.32. Safe Medical Device Act (SMDA).

2.32.1. SMDA requires MTFs to report device-related deaths and serious injuries to the Food and Drug Administration (FDA) and/or the manufacturer. In addition, MTFs are required to track permanently implantable devices (the failure of which would be reasonably likely to have serious adverse health consequences), life-sustaining or life-supporting devices used outside the MTF, and FDA-designated devices. ***NOTE:*** Although the primary responsibility for compliance with the SMDA resides with the MTF's Quality Assurance and/or Risk Management office, Clinical Engineering may be called upon to provide input or act as the focal point for equipment related issues.

2.32.2. Medical Device Tracking Program. The following list of devices or classes of devices are subject to the SMDA requirements:

2.32.2.1. Permanently implantable devices include implantable pacemaker pulse generators, cardiovascular permanent implantable pacemaker electrodes, replacement heart valves, automatic implantable cardioverters/defibrillators, processed human dura mater, implanted cerebellar stimulators, implanted diaphragmatic/phrenic nerve stimulators, implantable infusion pumps, temporomandibular joint prosthesis, glenoid fossa prosthesis, and mandibular condyle prosthesis.

2.32.2.2. In addition, the FDA has issued tracking orders for the following devices used outside the MTF: breathing frequency monitors, continuous ventilators, ventricular bypass (assist) device, direct current-defibrillators and paddles, and infusion pumps* except those designated and labeled for use exclusively for fluids with low potential risks (e.g., enteral feeding pumps). ***NOTE:*** Infusion pumps need not be tracked from patient to patient unless they are being sent outside the facility. For infusion pumps used exclusively in the MTF, medical equipment maintenance will generate reports to the manufacturer when the infusion pump is first received and when the infusion pump is permanently taken out of service.

2.32.3. Medical Device Reporting Program under the SMDA identifies medical device related incidents as soon as possible after their occurrence in order to initiate corrective action, prevent or minimize the occurrence of similar incidents, and comply with the reporting requirements of the Federal Food, Drug, and Cosmetic Act and FDA regulations. Procedures mirror many of the reporting requirements described in paragraph **2.35**; however, the reporting timetable differs. The FDA requires that all reports concerning equipment that is suspected of causing injury or death be submitted within 10 days. AFMLO/FOE must receive notification within 48 hours of the incident.

2.32.4. The SMDA requires that the program manager notify the manufacturer when a traceable device is removed from service (e.g. salvaged, trade-in) or is transferred to another MTF. The gaining MTF must notify the manufacturer when they receive the traceable device.

2.33. Health Insurance Portability and Accountability Act (HIPAA).

2.33.1. The Health Insurance Portability and Accountability Act, or HIPAA, is primarily an administrative and training requirement that is typically under the control of the MTF's risk manager or education department. The role of medical equipment maintenance in HIPAA compliance is very limited, but crucial to the compliance program as a whole. Title II of HIPAA addresses the issues of patient privacy and information security (45 CFR 142, 160 and 165). BMETs must assess current equipment inventories to ensure that patient privacy and data integrity are maintained at all times in accordance with the MTF's HIPAA Compliance Plan. A risk assessment must be done for those items that will hamper the process to determine if it is economically feasible to keep the item.

2.33.2. BMETs will review all new equipment requests to ensure HIPPA compliance. Procedures must be put into the initial inspection process to verify that all newly purchased equipment meets the MTF's HIPAA Compliance Plan.

2.33.3. Contracts and leases must be amended or must include verbiage to ensure that contractors and subcontractors are fully aware of the MTF's HIPAA Compliance Plan and the ramifications associated with failure to comply.

2.33.4. Medical maintenance will maintain a list of all equipment that can store PHI.

2.33.5. Prior to turn-in and/or disposal of equipment, BMETs must ensure all PHI is removed.

2.33.6. Prior to sending medical equipment to service providers outside of the MTF (repair and return), BMETs must make every attempt to remove all PHI, without permanently damaging the device. If all PHI cannot be removed without causing permanent damage to the device, obtain written agreement from the service provider IAW local MTF HIPAA policy.

2.34. Medical Device Recalls and Hazard Alerts.

2.34.1. Medical device hazard and alert management is a critical component of maintaining a safe healthcare environment for patients, staff, and visitors to AF MTFs. To facilitate the management of alerts and recalls Biomedical Maintenance Activities will use the following sources: Alerts Tracker® from ECRI Institute, MMQC, AFMOA/SGAL generated QA messages for AF-unique materiel, and direct sources such as the FDA, Prime Vendors/manufacturers, etc. IAW AFI 41-209, Section 9.5. The AFML list server (category: Medical Device Alerts and Recall Information) is also used for military unique items and special instructions related to recalls and alerts from any source. Further guidance on roles and responsibilities are available on the AFMOA/SGALE webpage.

2.34.1.1. Class I: A situation with a reasonable probability that the use of, or exposure to, a product will cause serious, adverse health consequences or death. Suspend these items from use until the item has been repaired or modified to correct the described problem.

2.34.1.2. Class II: A situation in which the use of, or exposure to, a product may cause temporary or medically reversible adverse health consequences or where the probability of serious adverse health consequences is remote. Class II recalls is not generally serious enough to warrant suspension of the item until corrected. Unless the AFMLL article specifies otherwise, you need not suspend the use of equipment under a class II recall.

2.34.1.3. Class III: A situation in which the use of, or exposure to, a product is not likely to cause adverse health consequences. Class III recalls are not generally considered serious enough to warrant suspension of the item until corrected. Unless the AFMLL article specifies otherwise, you need not suspend the use of equipment under a class III recall.

2.34.2. BMETs treat and document recalls that affect an item within the inventory as a quality assurance work order within DMLSS. After completing the recall procedures, BMETs document the equipment notes with the Alerts Tracker accession number, or the title and date of the list server message, and any other relevant information. BMETs will inform the medical materiel activity of published recalls involving supply items.

2.34.3. BMETs also treat and document medical equipment alerts published in the ECRI Health Device Alerts as modifications according to paragraph **2.31**. BMETs will inform the medical materiel activity of published recalls involving supply items.

2.34.4. When a manufacturer directly notifies an activity of a recall, the activity will take immediate action to implement the corrective procedures. BMETs must notify and provide a copy to AFMOA/SGALE within two (2) duty days by e-mail (**bmet@detrick.af.mil**) of any manufacturer's recall or material defect that has not been previously published through ECRI Alerts Tracker® or list server notification.

2.34.5. BMETs must inform the MTF EOC Committee, or equivalent, of all recalls that affect equipment in the MTF inventory and explain actions taken to ensure equipment is safe for patient use.

2.34.6. BMETs must inform the MTF Environment of Care Committee of all recalls that affect equipment in the medical treatment facility inventory and explain what they have done to ensure the equipment is safe for patient use.

2.35. Medical Equipment Defect Reporting.

2.35.1. The safety of medical equipment depends not only on its design and manufacturer, but also on facility utilities, expendable supply items, and users. These complex influences can make it hard to detect equipment-related problems that affect patient or staff safety. BMETs must follow these guidelines to ensure the appropriate medical staff evaluates all potentially significant hazards.

2.35.2. BMETs report equipment defects as a Category I or II complaint, using Medical/Dental Product Quality Deficiency Report (see AFI 41-209, Chapter 9). The reporting requirement in this paragraph is exempt from licensing IAW AFI 33-324.

2.35.2.1. BMETs report incidents that suggest medical equipment may have contributed to the serious injury, serious illness, or death of a patient. BMETs must go to the DSCP website and file the Medical/Dental Product Quality Deficiency Report (located at **https://dmmonline.dscp.dla.mil/forms/mpqdr_entry_new.asp**). A copy of the completed report must be sent to AFMOA/SGALE with a copy of the incident report when an injury is involved. All PHI should be removed.

2.35.2.2. Report defects that are clearly capable of causing or have caused injury or death to patients, visitors, or staff as Category I complaints.

2.35.2.2.1. Examples of Category I defects:

2.35.2.2.1.1. Excessive operating temperatures at exposed surfaces.

2.35.2.2.1.2. Inadequate thermostatic controls or safety backup thermostats.

2.35.2.2.1.3. Insecure mounting or insufficient counterbalancing of heavy items.

2.35.2.2.1.4. Dangerously exposed moving parts.

2.35.2.2.1.5. Electrical shock hazards.

2.35.2.2.1.6. Explosion hazards.

2.35.2.3. BMETs report items that perform unsatisfactorily due to malfunction, design deficiency, defects, or performance as a Category II complaint.

2.35.2.3.1. Examples of Category II defects:

2.35.2.3.1.1. Insufficient or inaccurate labeling.

2.35.2.3.1.2. Inadequate or inaccurate instructions for operation or maintenance.

2.35.2.3.1.3. Noncompliance with applicable AF or DoD purchase descriptions and specifications, applicable Federal standards, or the manufacturers' own specifications.

2.35.2.3.1.4. Unacceptable rapid deterioration or frequent breakdowns under normal use conditions.

2.35.2.3.1.5. Incorrect or unreliable diagnostic data outputs.

2.35.2.3.1.6. Inaccurate or unreliable control of the duration or quantity of energy applied to a patient for diagnostic or therapeutic purposes.

2.35.2.4. BMETs should not report all types of equipment-related problems as medical materiel complaints. Instead, BMETs should ensure the section submits an incident report to Risk Management for the following types of problems:

2.35.2.4.1. Unfavorable interaction or connection between equipment and hospital utilities which result in performance or safety problems, including: electrical power, compressed gas, medical gases, and steam.

2.35.2.4.2. Observed operator practices that substantially reduce the life expectancy, safety, or performance of medical equipment.

2.35.2.4.3. Problems in getting timely and effective responses from manufacturers' service representatives.

2.35.2.5. Recurring incidents should also be reported to AFMOA/SGALE.

2.35.3. BMETs report incidents that suggest medical equipment may have contributed to the serious injury, serious illness, or death of a patient.

2.35.4. Report defects that are clearly capable of causing injury or death to patients or staff as Type I complaints. All Type I complaints must be submitted within 48 hours of discovery. Complete FDA Form 3500A on ECRI's website and send a copy to AFMLO/FOE. ***NOTE:*** Examples of Type I defects include excessive operating temperatures at exposed surfaces, inadequate thermostatic controls or safety backup thermostats, insecure mounting or insufficient counterbalancing of heavy items, dangerously exposed moving parts, electrical shock hazards, and explosion hazards.

2.35.5. BMETs report items that perform unsatisfactorily due to malfunction, design deficiency, defects, or performance as a Type III complaint. BMETs should use the same reporting instructions described in paragraph **2.35.4** (48-hour reporting requirement does not apply in this case). ***NOTE:*** Examples of Type III defects include inadequate or inaccurate labeling, inadequate or inaccurate instructions for operation or maintenance, noncompliance with applicable Air Force or DoD purchase descriptions and specification applicable Federal standards, or the manufacturer's own specifications, unacceptable rapid deterioration or frequent breakdowns under conditions of normal use, inaccurate or unreliable diagnostic data outputs, and inaccurate or unreliable control of the duration or quantity of energy applied to a patient for diagnostic or therapeutic purposes.

2.35.6. BMETs should not report the following types of equipment-related problems as medical materiel complaints: unfavorable interaction or connection between equipment and facility utilities such as electrical power, compressed gas, medical gases, and steam which result in performance or safety problems; observed operator practices that substantially reduce the life expectancy, safety, or performance of medical equipment; and problems in getting timely and effective responses from manufacturers' service representatives. Instead, BMETs should ensure the section submits an incident report to the risk manager IAW paragraph **2.36.**

2.35.7. In addition to the preceding instructions, BMETs coordinate complaints involving aeromedical equipment with the Scott AFB MERC.

2.36. Initiating an Incident Investigation.

2.36.1. An incident is an event in which equipment or a procedure has caused or may have caused injury to a patient, staff member, or visitor.

2.36.2. Personnel must properly preserve medical equipment items that may have been involved in a device-related incident. The equipment operator must ensure that no device settings are changed, and all accessories and consumables are attached or intact. The item will not be cleaned until after the investigation unless infection control procedures require cleaning. The contaminated equipment should be labeled with an AF Form 980, **Caution Tag**.

2.36.3. The clinical engineering officer, senior BMET, or civilian equivalent will conduct a formal investigation in conjunction with the medical facility safety officer, risk manager, or others as appropriate.

2.36.4. Summarize this investigation on AF Form 765, **Hospital Incident Statement**, and provide the form to the risk manager.

2.36.5. The investigation must be conducted by no less than two BMETs to include: impounding the equipment, noting the position of all knobs and dials on the equipment (and photographing if possible), noting any missing components or parts, noting the overall condition of the equipment, interviewing involved personnel, identifying exact items of consumable supplies by lot number, date of manufacture, or other means, perhaps by getting the original packaging out of the trash, and reviewing maintenance history and test procedures. ***NOTE:*** For small facilities in which two BMETs are not available to conduct the investigation, one BMET assisted by another non-partial staff member is acceptable.

2.36.6. The investigating team will examine the three basic interfaces (operator-device, patient-device, and consumable supply-device) to determine the cause of an incident.

2.36.7. Operator and device interface investigation will cover the following questions:

2.36.7.1. Did the operator use the device appropriately? Review operating instructions to verify.

2.36.7.2. Were control settings appropriate for the intended diagnostic or therapeutic procedure?

2.36.7.3. When and where was the operator training accomplished and documented?

2.36.7.4. Did personnel notice any facility utility problems (electrical, medical gas, water, suction, or HVAC) before, during, or after the procedure?

2.36.8. Patient and device interface investigation will cover the following questions:

2.36.8.1. How did the device respond when connected to the patient?

2.36.8.2. Was the patient on drug therapy or were there any related sensitivities?

2.36.9. Consumable supply and device interface investigation will cover the following questions (consumable supplies include leads, electrodes, plastic tubing, filters, reservoirs, and breathing circuits):

2.36.9.1. Were the items designed for use with the affected device?

2.36.9.2. Were items properly connected to the device and the patient?

2.36.9.3. Were items reusable or intended for one-time use?

2.36.10. BMETs work with the MTF Risk Manager to develop local procedures that clearly delineate the responsibilities for conducting an incident investigation involving medical equipment. Outline the responsibilities for these investigations in the MTF's Quality Assurance/Risk Management (QA/RM) plan as addressed by AFI 44-119, *Clinical Performance Improvement*.

2.36.11. BMETs should help the QA coordinator or risk manager educate equipment custodians and operators of their responsibilities in equipment-related incident investigations.

2.36.12. The regional MERC and AFMLO/FOE are available for advice on how to set up these programs and can provide assistance in actual incident investigations.

2.37. Training Equipment Operators.

2.37.1. Operator error and improper use of equipment can lead to the injury or death of a patient or staff member. To prevent such occurrences in Air Force medical treatment facilities, medical equipment maintenance personnel will help departments train operators on patient-related equipment as part of departmental in-service training.

2.37.2. BMETs must offer or coordinate training when a new equipment system is first issued and periodically as requested.

2.37.3. Maintain documentation of this training within the section receiving the in-service training as well as within the medical equipment maintenance activity.

2.37.4. Operator training should include: proper operation including features unique to the particular manufacturer or model of equipment, safety precautions for operators and patients, user PM, cleanliness, and operational verification procedures, recognition and correction of common operational problems, recognition of defective equipment and potential hazards, and proper reporting procedures for maintenance requests.

2.37.5. Frequent requests for repair service because of operator error or inadequate user maintenance may indicate the operator needs further training. BMETs who see such problems should document the discrepancies, notify their supervisors, and offer operator training to the section supervisor and equipment operators. Document training provided on a work order.

2.37.6. BMETs, the manufacturer, or medical staff members can provide operator training. When procuring new equipment, BMETs should consider including a requirement in the contract that the manufacturer provide training for both BMETs and operators.

Section 2E—Documenting and Tracking Program Compliance

2.38. Work Order Documentation and Control System.

2.38.1. A work order documentation and control system establishes work priorities, provides a means of scheduling and assigning work, documents maintenance performed and parts used, provides information needed to analyze and manage maintenance activities, and validates the local maintenance and safety programs for the purposes of accreditation, risk management, and management inspections.

2.38.2. BMETs will complete a work order to document all initial inspections, PM, calibration, repair, inspection of medical gas systems (paragraph **2.24.3.2**), in-service training of medical personnel, extensive equipment review projects, and pre-procurement technical surveys.

2.38.3. A completed work order must include: identification of the equipment item, using activity, nature of the work required, summary of the work accomplished, time spent, technician performing the work, signature of the person accepting the work, and repair parts used.

2.38.4. Work orders are not required for time spent on shop administration, repair parts management, on-job-training of maintenance personnel, squadron functions, or other similar activities requiring technicians' time. BMETs may maintain informal documentation of the time spent in these areas for the purpose of justifying requests for additional staff.

2.38.5. Activities using MEDLOG will follow the work order documentation and control procedures described in paragraph **2.39**. Activities using DMLSS will follow the work order documentation and control procedures described in paragraph **2.40**. ***Note:*** While MEDLOG is a legacy system that will eventually be replaced with DMLSS, specific instructions for MEDLOG will remain part of this AFI until MEDLOG is completely phased out.

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2.40. DMLSS Work Order Procedures. NOTE: This section applies to only those activities using the DMLSS system. MEDLOG users should refer to paragraph **2.39**.

2.40.1. DMLSS Work Order Management System.

2.40.1.1. The DMLSS system provides an automated system for work order management and generates the following three types of work orders.

2.40.1.1.1. Acceptance Inspection Work Orders. The DMLSS system produces acceptance inspection work orders for receipts or gains of maintenance items. The BMET will follow the procedures in paragraph **2.13** upon receiving acceptance inspection work orders on medical items.

2.40.1.1.2. Scheduled Work Orders. BMETs can request scheduled work orders on-line or during end-of-day processing by selecting the Navigate/Work Orders/Request Scheduled Work Orders menu. The search screen allows the BMET to select criteria to create one or more scheduled work orders for next month. The DMLSS system also automatically creates work orders not requested during the current month during the end-of-month processing. BMETs complete work orders that appear in the Open Work Order Register for previous months as much as possible before completing the current month's scheduled work orders.

2.40.1.1.3. Unscheduled Work Orders. BMETs generate a work order for unscheduled maintenance using the Navigate/Work Orders/New Work Order menu or the New Work Order icon on the horizontal tool bar.

2.40.1.1.3.1. If the item has no ECN number, the BMET should select the Organization and Customer Name to create a work order. The DMLSS system then produces a work order on-line.

2.40.1.1.3.2. BMETs should process unscheduled work orders against the individual component. This work order identifies specific components that may be causing excessive system downtime. If the components are linked to a system, the DMLSS system provides access to the other records.

2.40.1.2. Work Order Completion. BMETs complete work orders by clicking the Complete icon on the vertical tool bar of the work order detail screen. After completing a work order, the system automatically updates the maintenance data in the Equipment Record. The technician follows the Work Order completion step-by-step on the Air Force DMLSS Deployment Team website to enter the necessary information on the work order.

2.40.1.3. Cancellation of Work Orders. BMETs may cancel work orders by clicking the Cancel icon on the vertical tool bar of the work order detail screen. The system requires that a technician name and a cancellation reason be entered before the cancel process will proceed. It is important to note that the DMLSS system does not generates a new work order in the next monthly cycle if a scheduled PM, calibration, or safety inspection is overdue. BMETs should only cancel scheduled work orders because of unusual circumstances that are fully documented. The BMET should normally leave the work order incomplete and complete those with the oldest Work Order Number first.

2.40.2. DMLSS Maintenance Management Computer Products. The DMLSS system generates these computer products that help in managing work orders:

2.40.2.1. The *Work Order Register Register* is the primary document used to control work production and quality control of work order processing. The DMLSS Work Order Register is an on-line document that presents real time data and may be printed if desired. It consists of three sections: Open, Completed and Inactive.

2.40.2.1.1. The Open Section lists all outstanding work orders including the new scheduled work orders generated during the end-of-month processing and work orders generated that day. BMETs should use the Open Section to manage and control work assignments.

2.40.2.1.2. The Completed Section shows all completed work orders processed that have not been through two end-of-month processes. BMETs use this section for quality control on all work orders.

2.40.2.1.3. The Inactive Section shows all work orders that have been completed and through two end-of-month processes. These work orders are the basis of all historical information concerning an item within the DMLSS system.

2.40.2.2. The *Work Order Management Summary (12 Month Trend)* report shows the status of all work orders at the start of each month and contains this data for the past twelve months. The report shows the number of work orders and estimated scheduled hours for the following categories: Beginning Balance, New Work Orders, and Total Workload. The report shows the number of work orders, unscheduled hours, estimated scheduled hours, actual scheduled hours and number of canceled work orders for the completed category. Additionally, the report shows the total number of Outstanding work orders and the quantity in each Work Order Status Code.

2.40.2.3. The *Work Order Management Summary (MA by Customer)* report shows the same categories of data as the 12 Month Trend report but only for the current month and broken out by each customer account.

2.40.2.4. The *Work Order Management Summary (MA by Team)* report shows the same categories of data as the 12 Month Trend report but only for the current month and broken out by maintenance team.

2.40.2.5. The *Work Order Management Summary (Team by Technician)* report shows the same categories of data as the 12 Month Trend but only for the current month and broken out by each maintenance technician.

2.40.2.6. The *Summary Workload Forecasting* online report shows the estimated number of scheduled work orders and scheduled maintenance hours by customer for the next twelve months. The BMET has several selectable parameters to define how this data is retrieved.

2.40.2.7. The *Detailed Workload Forecasting* online report shows the individual scheduled services in the months that they are due for each equipment item owned by a customer and the estimated scheduled maintenance hours for the next twelve months. The BMET has several selectable parameters to define how this data is retrieved.

2.40.2.8. The *Customer Maintenance Report* is produced in two parts. Part one shows summary data about unscheduled and scheduled work orders as well as the labor costs and part costs associated with those work orders. Part two provides labor hours and a part cost associated with each unscheduled or scheduled work order and identifies equipment that is Unable to Locate.

2.40.2.9. The *Unable To Locate Equipment Notification* report is generated when a work order status code of Unable to Locate (UL) is entered against a medical equipment item. BMETs should send one copy of the report to the equipment custodian and other copy to MEMO. Additionally, the DMLSS system provides a pending action message to the MEMO in-box every time a work order is saved with a Work Order Status of Unable to Locate.

2.40.2.10. The *Consolidated Customer Maintenance Report* shows the Maintenance Manager a summarized view of total unscheduled and scheduled work orders, the number of completed unscheduled and scheduled work orders, the number of unscheduled and scheduled hours, the parts cost, the contract cost, the number of work orders with a failure reason of no problem found, the number of work orders with a failure reason of operator error, the number of work orders with a failure on a checklist and the number of work orders with a work order status of unable to locate (UL).

2.40.3. Automated Medical Equipment Management Reports. The DMLSS generates the following reports to help BMETs manage the medical equipment maintenance activity:

2.40.3.1. The *Historical Maintenance Report (HMR)* contains historical maintenance information for significant items. BMETs can print the report by following the guidance in selecting the Print Icon on the equipment search result screen or from the equipment detail screen. The DMLSS HMR is a one page, high level summary report. Additionally, the BMET may print an Equipment Detail Report from the equipment detail screen. The Equipment Detail Report contains detailed historical data that may be several pages long.

2.40.3.2. The *DMLSS Medical Expense and Performance (MEPRS) Report* shows the number of work-hours expended by Customer ID and MEPRS code. BMETs can use it to review hours incurred by Customer ID. BMETs should provide a copy to the Resource Management Office each month. Identify to MEMO any errors or omissions in the UCA codes loaded for each RC/CC.

2.40.3.3. The *Maintenance Management Report* helps supervisors to evaluate the medical equipment maintenance function. The report has three parts:

2.40.3.3.1. The *Unscheduled Services Summary* shows the number of unscheduled services performed, the hours expended and the average response time grouped by in-house technicians and others. It provides summary work order balance data and shows aged work order information.

2.40.3.3.2. The *Scheduled Services Summary* shows the number of scheduled services scheduled and the number of scheduled services performed broken down by scheduled service type and the hours expended all grouped by in-house technicians and others. It provides summary work order balance data and shows aged work order information.

2.40.3.3.3. The *Maintenance Service Time Accounting Summary* shows information about the number of technicians assigned to the Maintenance Activity as well as time documented in the MA Time Sheet versus the time recorded in work orders. The Time Sheet data is compared to the total time recorded in work orders to provide a percentage of productive time.

2.40.3.4. The *Technician Productivity Report* contains a summary of work orders completed during the current month by technician name. It lists the number of hours expended for unscheduled and scheduled work orders service types completed, total hours and percentage of total hours expended by the technician for the current month and a twelve-month summary. This report helps the manager keep track of the number of hours each technician has documented in the month.

2.40.3.5. The *Average Annual Maintenance Cost Report* is produced annually and shows the dollar values expended for each Manufacturer/Common Model of maintenance significant equipment in the MTF inventory for the following categories: Parts, Scheduled Services, Unscheduled Services and a total. Additionally a mean time between failure calculation is provided.

2.40.3.6. The *Contract Expiration Report* is produced quarterly and provides data on maintenance contracts that will expire within the next six months. This report is provided in two parts. Part one displays the data sorted by contractor name and part two displays the data by contract end date. This report is also available as a standard inquiry that can be run anytime the BMET needs current data.

2.40.3.7. The *Customer Scheduled Services Listing* is produced monthly and it lists all equipment items grouped by customer that are due scheduled maintenance for the current month. The BMET should send this report to each customer so that they can assist in locating these items for scheduled servicing.

2.40.3.8. The *Maintenance Activity Productivity Report* shows the hours expended for all unscheduled and scheduled service types for the past month and a total of the last twelve months. The report also calculates the percentage of total hours expended for each service type for the past month and a total of the last twelve months. This report also provides scheduled hours, unscheduled hours, total hours and percentage of total hours for each maintenance team.

2.40.3.9. The *Team Productivity Report* shows the hours expended for all unscheduled and scheduled service types for the past month and a total of the last twelve months grouped by maintenance team. The report also calculates the percentage of total hours expended for each service type for the past month and a total of the last twelve months grouped by maintenance team. This report also provides scheduled hours, unscheduled hours, total hours and percentage of team total hours for each maintenance technician assigned to that team.

2.40.3.10. The *Warranty Expiration Report* shows all equipment items that have parts or labor warranties that will expire within the next six months. This report is provided in two parts, part one is sorted by labor end date and part two is sorted by parts end date.

2.40.3.11. The *Workload Report* shows the number of open unscheduled and scheduled work orders and groups them by work order status. The report also provides the number of work orders that have been open for 31-60 days, 61-90 days and over 90 days.

2.41. Non-Automated Work Order Procedures.

2.41.1. BMETs without a MEDLOG/DMLSS system will use a manual work order (available on the AFML website) to record the work request and document the action taken. BMETs transcribe repair data and any changes in the condition code of the repaired item to the appropriate AF Form 509, **Medical Equipment Maintenance Record**, when they have completed the required maintenance.

2.41.2. BMETs use a manual work order register to assign work order numbers and manage unscheduled workloads. This work order register will include work order number, item description, using activity, equipment control number, status, and date completed.

2.41.3. BMETs assign a twelve-digit work order number composed of the current eight-position date (YYYYMMDD) followed by a four-position serial number assigned from 0001 to 9999.

2.42. Keeping Historical Maintenance Records (HMRs).

2.42.1. Properly prepared and maintained HMRs provide equipment identification data (to include the equipment control number, manufacturer, common model, and serial number), location, condition, maintenance history, and maintenance actions.

2.42.2. BMETs maintain HMRs for all medical equipment and maintenance significant supply items, regardless of ownership. BMETs also maintain HMRs for components of all investment equipment and other medical systems (e.g. X-ray, patient monitoring, etc).

2.42.3. BMETs ensure the data in the HMR is current and accurate.

2.42.4. When the facility does not have an assigned BMET, the activity responsible for providing medical equipment maintenance support maintains the HMR.

2.42.5. BMETs should use the HMR to effectively manage equipment assets. During the budget process, these records are used to help identify equipment that needs replacement.

2.42.6. HMRs in the MEDLOG system are a combination of the item master record and the QA maintenance record. The item master record is normally established by MEMO. ***NOTE:*** For DMLSS users, the HMRs in the DMLSS system are a combination of the MTF catalog record and the equipment record. The MTF catalog record and the equipment record are normally established by MEMO.

2.42.7. If not already established, BMETs must establish a separate item master record for each component of a system and relate the components to an end item according to AFCSM 41-230, Volume 2, Paragraph 21.13. Master records for component items should be entered at zero acquisition cost. The end item master record must include total acquisition cost of all components of the system according to AFMAN 23-110, Volume 5, Chapter 18, Paragraph 41. ***NOTE:*** For DMLSS users, replace "item master record" in this paragraph with "MTF catalog record and equipment record."

2.42.8. BMETs must also establish a master records on items not normally maintained in the MEDLOG or DMLSS system, but which require continuing maintenance. Examples include test equipment, line isolation monitors, and ground fault circuit interrupters.

2.42.9. Manual Historical Maintenance Records. BMETs maintain manual AF Form 509, *Medical Equipment Maintenance Records*, for those medical activities without a MEDLOG or DMLSS system.

2.43. Equipment Data File (EDF).

2.43.1. BMETs establish and maintain a separate history file on each maintenance significant equipment item or system, including equipment rentals and equipment provided as part of a reagent or supply contract.

2.43.1.1. System components do not require a separate EDF, but the system EDF must contain all component related information.

2.43.1.2. An EDF is also established for each customer account requiring maintenance of items that do not have equipment control numbers.

2.43.1.3. The EDF is maintained in two parts:

2.43.1.3.1. DMLSS will maintain all work orders (scheduled and unscheduled).

2.43.1.3.2. All other documentation will be kept in a separate physical folder or on a network drive. If a network drive is used, it must be backed up on a recurring basis (daily is preferred; weekly at a minimum). Access should be limited and must be auditable. If an electronic EDF is utilized, it must contain (at a minimum) the items listed in paragraph 2.44.6.

2.43.2. BMETs maintain these files in ECN sequence and retain them for the life of the equipment.

2.43.3. Each file will contain all significant historical information on the item that is not contained in the electronic record. This includes:

2.43.3.1. Copy of the warranty and guarantee registration data.

2.43.3.2. Pre-procurement documentation (as applicable).

2.43.3.2.1. AFI 41-209, Attachment 25, Format of Supporting Statements for Equipment Acquisition.

2.43.3.2.2. Room drawings.

2.43.3.2.3. Power evaluations.

2.43.3.2.4. Copy of manufacturers' disclosure statement on medical device security (as applicable).

2.43.3.2.5. Radiation survey letter. A letter from a qualified Regional Medical Physicist that either evaluates the acceptability of existing shielding or calculates the required shielding needed for the proposed medical device being procured.

2.43.3.3. Copy of FDA 2579, Report of Assembly of a Diagnostic X-Ray System.

2.43.3.4. AF/DoD network security documentation.

2.43.3.5. Copies of the purchase, lease, rental, one-time repair, and annual maintenance contract(s).

2.43.3.6. Network diagram (if applicable).

2.43.3.7. Service reports from depot or contract maintenance.

2.43.3.8. All modifications, complaints or recall information, and related work orders. A printed version of the work order must be maintained with all applicable recalls and modifications.

2.43.3.9. All maintenance worksheets (acceptance, calibration, inspection, and electrical safety). The work order notes field in DMLSS will not be used to record this information.

2.43.3.10. Entrance skin exposure calculations, provided by the regional physicist, IAW AFI 48-148, paragraph 6.7.

2.43.4. Each file will also contain work order history on the item, if not maintained in DMLSS or in electronic, archived equipment data records:

2.43.4.1. Initial inspection work orders.

2.43.4.2. Preventive maintenance work orders that contain significant historical data (for example, repair actions taken against the work order, observed operator neglect, or information pertinent to the PM scheduling).

2.43.4.3. Unscheduled work orders.

2.43.4.3.1. All unscheduled work orders of ECN items will be kept for the life of the equipment.

2.43.4.3.2. All unscheduled work orders of non-ECN items will be kept for 60 days. If routine maintenance is required, have the item picked up on record and establish the appropriate inspection cycle. This will ensure the proper accountability of man-hours and funds.

2.43.4.4. Calibration work orders.

2.43.4.5. Manual work orders.

2.43.4.6. File plan for e-EDF:

2.43.4.6.1. System/item ECN folder.

2.43.4.6.2. Procurement documentation folder.

2.43.4.6.3. Pre-procurement documents.

2.43.4.6.4. FDA Forms 2579.

2.43.4.6.5. Warranty registration.

2.43.4.6.6. Worksheets folder.

2.43.4.6.7. Acceptance/initial inspection.

2.43.4.6.8. Calibration.

2.43.4.6.9. Electrical safety.

2.43.4.6.10. Inspection.

2.43.4.6.11. Manual work orders folder.

2.43.4.6.12. Recalls and alerts folder.

2.43.4.6.13. Modification

2.44. Technical Reference File.

2.44.1. Each maintenance activity maintains a technical reference file on each item of medical equipment in accordance with NFPA 99. This file includes all manufacturers' operating and service literature.

2.44.2. File items so it is easy to locate and is traceable to the HMR. If using web-based manuals, verify the hyperlinks as part of the scheduled/unscheduled maintenance process and include the address in the technician notes. ***NOTE:*** For DMLSS users, file all items so they are traceable to the Equipment Record via the Manufacturer/Common Model record. If using web-based manuals, include the web address in the Literature Location field.

2.44.3. Maintain a copy of the equipment operator's instructions and procedures in the department that uses the equipment.

Section 2F—Managing Repair Parts

2.45. Managing the Repair Parts Inventory.

2.45.1. Parts maintained in the medical equipment maintenance section will be classified as repair parts inventory, except for parts ordered for immediate use and common bulk hardware items such as nuts, bolts, batteries, washers, pipe fittings, cotter pins, and wire.

2.45.2. Medical logistics should not carry repair parts in medical stock record account inventories. Parts should be issued to the medical equipment maintenance activity upon receipt.

2.45.3. BMETs store repair parts in a secure area within the medical equipment maintenance activity.

2.45.4. BMETs maintain in the repair parts inventory only those parts needed on a continuing basis. If BMETs conduct PM inspections properly, they can anticipate and requisition most parts, especially high-cost items, on an as-needed basis.

2.45.5. BMETs manage repair parts levels to avoid high value inventories and minimize losses resulting from obsolete repair parts. BMETs should consider a number of factors when determining what parts and quantities to keep in peacetime repair parts inventory:

2.45.5.1. Criticality of equipment. If the medical facility can function safely without the equipment for a short time, eliminate repair parts levels. BMETs may keep higher levels of repair parts for specific items of equipment essential to life support, emergency resuscitation, or continuity of operations.

2.45.5.2. Cost of downtime. If the item is out of service, will patient appointments be canceled or will patients have to be referred to civilian facilities? The cost of lost work-hours and supplemental care may be more than the cost of maintaining repair parts in inventory.

2.45.5.3. Number of units on hand. The more units on hand, the more likely repair parts will be required and should be in the repair parts inventory. In some cases, repairs may be less urgent because there are enough items for exchange.

2.45.5.4. Consumption rate. If a facility uses a repair part frequently, it should be included in the repair parts inventory.

2.45.5.5. Pipeline time. Pipeline time is the time from when the repair part is ordered until it is received. Delivery options (over night, 2nd day) can help reduce pipeline times, therefore lowering or eliminating repair parts levels.

2.45.5.6. Cost of the repair parts. Factors to consider when determining the overall cost of a repair part are the dollar value of the part and the minimum order level of the company. ***NOTE:*** To avoid ordering additional quantities of a repair part to meet minimum order level, consider purchase of other parts, accessories, or consumables.

2.45.5.7. Shelf life. Avoid keeping a large quantity of parts that deteriorate while in storage.

2.45.5.8. Age of the equipment. As equipment gets older, breakdowns normally increase which results in greater demand for repair parts.

2.45.5.9. Availability of blanket purchase agreements (BPA) and government purchase card (GPC) purchases. These purchases may eliminate the need for stocking repair parts because the BMET needs little lead-time for procurement. BPAs and GPC can thus reduce inventory costs, space requirements, and potential losses in repair parts inventory.

2.45.5.10. Aeromedical Evacuation (AE) Certification. Original equipment manufacturer (OEM) parts must be used for AE certified equipment because of the testing criteria and limitations imposed by AE certification.

2.45.6. Medical equipment maintenance must annually review all repair parts levels. BMETs will use the Bench Stock Balance List (BSL), the Spare Part to End Item List (SER), and the Special Purpose Stock Status Report (SSR), referenced in AFCSM 41-230, Volume 2, to review repair parts levels. ***NOTE:*** For DMLSS users, BMETs will use the Repair Part search capabilities and the process to review repair parts levels.

2.45.7. BMETs conduct a physical inventory of all repair parts assets before 30 April each year.

2.45.7.1. Compare the actual inventory to the Bench Stock Balance List. ***NOTE:*** BMETs with DMLSS will compare the actual inventory to the Physical Inventory list.

2.45.7.2. BMETs submit a letter to the MLFC listing the results of the inventory. Indicate the overall accuracy in line items and dollar amount, and value of all overages and shortages. Include recommended corrective actions. ***NOTE:*** BMETs with DMLSS submit the Physical Inventory print out to the MLFC. This report indicates all overages and shortages discovered during the inventory.

2.45.7.3. Adjust repair parts balances by processing spair parts gain (SPG) and spare parts loss (SPL) transactions. Ensure these adjustments do not increase computer-controlled stock levels if no valid requirement exists. ***NOTE:*** For DMLSS users, the Physical Inventory will adjust repair part balances by processing Repair Part Gains (RPG) and Repair Part Loss (RPL) transactions in the background. The BMET is prompted to choose whether these adjustments will be used to capture demands.

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2.47. Managing Repair Parts in DMLSS.

2.47.1. Use the Customer Area Inventory Module (CAIM) for managing the repair parts inventory, see AFML webpage under Guidance Documents, "Managing Repair Parts in DMLSS." BMETs conduct a physical inventory of all repair part assets before 30 April each year IAW paragraph 2.45.7.

2.47.1.1. DMLSS keeps track of on-hand balances, can automatically reorder parts, calculates stock levels, and automatically updates HMRs with repair parts costs.

2.47.1.2. Repair parts levels can be assigned by medical equipment maintenance or automatically in DMLSS.

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2.47.1.2.2. **(DELETED)**

2.47.1.2.3. **(DELETED)**

2.47.1.3. To establish a repair parts record, follow the guidance in the DMLSS user guide or the DMLSS step-by-step tutorial.

2.47.1.4. **(DELETED)**

2.47.1.5. BMETs process inventory adjustments for items picked up from inventories or cannibalizations.

2.47.1.6. BMETs process inventory adjustments for items lost due to deterioration or accidental damage.

2.47.2. Issuing Repair Parts.

2.47.2.1. **(DELETED)**

2.47.2.2. **(DELETED)**

2.47.2.3. **(DELETED)**

2.47.2.4. If repair parts records are established and on-hand balances drop below the set levels, the BMET may process an Automatic Replenishment, which identifies what parts need replenishment.

2.47.2.5. Each maintenance activity must review the spare part requirements list carefully to ensure the items listed are valid requirements. BMETs may establish a requirement or delete the record using the DMLSS system.

2.47.3. DMLSS Products for Managing Repair Parts Inventory.

2.47.3.1. The Inventory Status Report in the CAIM module will show the current status of the repair part inventory. Inventory balances are maintained in real time and adjusted by the computer or user action.

2.47.3.2. The *Inventory Adjustments Report* in CAIM shows the repair parts adjustments and dollar values gained or lost. Inventory adjustments are captured in real time by the computer as a result of RPG or RPL transactions. The DMLSS system allows the user to specify a date range to review when running this report.

2.47.3.3. The *Consumption History Report* in CAIM provides a history of parts issue and is accessible whenever the user desires this information.

2.47.4. Locally Purchased Repair Parts. BMETs should assign Item ID numbers for repair parts purchased locally. The DMLSS system has enough information in each record to clearly identify the manufacturer without using "P" numbers. This allows the Item ID number to be represented by the manufacturer's part number. The DMLSS Item ID number can be 32 characters in length.

2.48. Finding Sources and Publications for Repair Parts.

2.48.1. The materiel manager is normally the approving authority for the local purchase of repair parts. Managers may use a variety of contracting methods, including government purchase card, local purchase, and decentralized blanket purchase agreements (DBPAs).

2.48.2. For DMLSS sites, the medical equipment maintenance function may determine whether to directly purchase repair parts with the government purchase card or pass the requisition to medical materiel.

2.48.2.1. If medical equipment maintenance has a purchase card and procures the repair part directly, "Verify Orders" within the Customer Area Inventory Management (CAIM) module should be turned off. In this manner, the medical equipment maintenance procurement clerk will place orders directly without the need to further view the requirement before placing the order.

2.48.2.2. If medical equipment maintenenance passes requisitions to medical materiel, "Verify Orders" within CAIM should be turned on. This will permit the BMET to view the requirement prior to forwarding to the medical materiel procurement clerk.

2.48.3. DSCP offers a number of DBPAs for local use.

2.48.3.1. Some of these agreements cover repair parts, accessories, and calibration services.

2.48.3.2. The AFML website has a search feature to find DBPAs available for use.

2.48.3.3. See your local materiel manager for additional information on these procurement methods.

2.49. Managing Excess Repair Parts Inventory.

2.49.1. BMETs periodically review repair parts inventory balance records. Repair parts may build up if the facility uses few repair parts or has disposed of the equipment that required the parts.

2.49.2. BMETs report excess repair parts (greater than $250) by preparing a turn-in document (DD Form 1348-6) and transferring the parts to medical materiel IAW AFMAN 23-110, Volume 5, Chapter 20.

2.49.3. Medical materiel reports excess repair parts to the Air Force Medical Logistics Office (AFMLO) according to AFMAN 23-110, Volume 5, Chapter 20.

2.49.4. AFMLO publishes a list of excess repair parts available for redistribution on a non-reimbursable basis.

2.49.5. BMETs should periodically compare the excess list to their requirements list to see if excess parts are available to satisfy their requirements.

Section 2G—Using Other Maintenance Sources

2.50. Using Contract Maintenance.

2.50.1. AFMAN 23-110, Volume 5, Chapter 16, tells how to purchase commercial contract maintenance locally. Commercial contract maintenance is authorized to supplement the organizational maintenance program when adequate resources or skills are not available, high costs of training or specialized test equipment make it too expensive to develop an in-house maintenance capability, or depot level maintenance is not available, not responsive, or more expensive than commercial sources.

2.50.2. DBPAs are available for repair and calibration of selected items of medical equipment and medical maintenance test equipment. Additionally, the Veteran Affairs Special Services (VASS) contracting office has contracts in-place for use by all DoD agencies. More information about the VASS contracts can also be found on the AFML website.

2.50.3. Maintenance personnel should ask host supply accounts for a copy of contracts that include repair and return in order to become familiar with their terms and limitations.

2.50.4. BMETs ensure annual contracts for PM, calibration and repair, and one-time repair actions specify the equipment involved, whether parts are included, hours of service, response time, performance standards, frequency of servicing, documentation of work performed, reporting instructions, and distribution of service reports. ***NOTE:*** All anesthesia and X-ray calibration contracts will require the contractor to complete the electronic calibration forms, to include Post Calibration Radiation Inspection (PCRI) forms for X-ray.

2.50.5. BMETs ensure contracts for periodic calibration of medical equipment specifies the accuracy specifications and tolerances to which equipment will be calibrated. They also ensure the contracts require the contractor to furnish documentation that shows the calibration results.

2.50.6. BMETs ensure contracts for maintenance services require contractors' representatives to sign in and out of the medical equipment maintenance activity before and after any services. BMETs establish local procedures to control contractors during other than normal duty hours.

2.50.7. The BMET maintains a copy of each contract and service report in the medical equipment maintenance section and ensures the using section has a copy. The BMET keeps the contract in the equipment data file (EDF) or establishes a separate file for each recurring contract. The file should contain a copy of the purchase order and contract with cost figures, equipment items, model, serial number, index number, point of contact, phone numbers, emergency contact procedures, contractor's service report and any medical maintenance work orders used to document the completed work. The file should also contain a contractor service log to document the date and time of call, type of call, date and time of contractor arrival, and date and time of work order completion.

2.50.8. Maintain documentation for one-time repair contracts in the individual equipment data files.

2.50.9. BMETs will assign maintenance source codes to equipment data records for equipment covered by a maintenance contract. BMETs using MEDLOG enter the locally assigned code by using a Revise QA Maintenance Record (RVM) transaction. For DMLSS users, this is accomplished through the equipment detail record.

2.50.10. BMETs using MEDLOG generate a list of all items under contract by completing a Request Maintenance Source List (MSL) transaction. For DMLSS users, this report is generated using Business Objects.

2.51. Using United States Army Depots.

2.51.1. The United States Army Medical Materiel Agency (USAMMA), Medical Maintenance Operations Divisions, located at Tobyhanna Army Depot, Tobyhanna, Pennsylvania and Defense Distribution Center, Tracy Location, Tracy, California, provides depot-level maintenance services for selected medical equipment.

2.51.2. Capabilities include audiometer repair and calibration, electronics repair and calibration, optical repair and calibration, dental hand piece repair, on-site technical assistance, telephonic technical assistance, military entrance processing station (MEPS) direct exchange program, medical equipment standby program, training, X-ray rebuild, X-ray tube repair/rebuild, X-ray acceptance inspections, X-ray repair and return services, and special purpose test measurement diagnostic equipment repair and calibration. ***NOTE:*** Requests for on-site technical assistance and X-ray acceptance inspections must be made to HQ USAMMA.

2.51.3. USAMMA's Medical Maintenance Operations Divisions maintain a stock of selected items of medical equipment and major components to provide direct exchange service. An updated listing can be found on USAMMA's Maintenance Engineering and Operations Directorate website located at **http://www.armymedicine.army.mil/usamma/maintenance**. BMETs may telephone the USAMMA Medical Maintenance Operations Divisions to get assistance, special shipping, and documentation instructions.

2.51.4. Air Force facilities reimburse USAMMA for services performed from local operations and maintenance (O&M) funds. Medical materiel activities should process all formal transactions and furnish appropriate fund citations for the cost of repair and transportation.

2.51.5. BMETs submit recommendations for additions to the Air Force float stock through command channels to AFMLO/FOE. Report any difficulties in obtaining service or any inadequate or untimely service to AFMLO/FOE and furnish copies of the report to Commander, United States Army Medical Materiel Agency, 1423 Sultan Drive, Suite 100, ATTN: MCMR-MMM, Fort Detrick, Maryland 21702-5001.

2.51.6. Activities located in the Elmendorf, Travis, Lackland, Sheppard, Scott Air Force Base and PACAF MERC regions may use the services of the USAMMA Medical Maintenance Operations Division located at Defense Distribution Center, Tracy, California when feasible.

2.51.6.1. Address shipments to: U.S. Army Medical Materiel Agency/Medical Maintenance Operations Division, Bldg. T-255, Tracy Site, 25600 Chrisman Road, Defense Distribution Center, Tracy, CA 95376-5050

2.51.6.2. Address correspondence to: U.S. Army Medical Materiel Agency/Medical Maintenance Operations Division, ATTN: MCMR-MMM-DP, Bldg. T-255/Tracy Site, Defense Distribution Center, P.O. Box 960001, Stockton, CA 95296-0970. Phone: DSN 462-4557, Commercial (209) 839-4557.

2.51.7. Activities located in the remaining MERC regions should use the services of the USAMMA Medical Equipment Maintenance Division at the Tobyhanna Army Depot, Tobyhanna, Pennsylvania.

2.51.7.1. Address shipments to: U.S. Army Medical Materiel Agency/Medical Maintenance Operations Division, Warehouse 4/Bay 1, Tobyhanna Army Depot, Tobyhanna, PA 18466-5063.

2.51.7.2. Address correspondence to: U.S. Army Medical Materiel Agency/Medical Maintenance Operations Division, ATTN: MCMR-MMM-DP, Tobyhanna Army Depot, 11 Hap Arnold Boulevard, Tobyhanna, PA 18466-5063. Phone: DSN 795-7612 or 7744, Commercial (717) 894-7612 or 7744.

2.51.8. Overseas activities may also use the medical equipment repair capabilities of any in-theater Army medical materiel center.

2.51.9. Document support of this type in a formal support agreement and send a copy of this agreement to AFMLO/FOE.

2.51.10. Facilities may send dental hand pieces and optical equipment for USAFE facilities to the United States Army Medical Materiel Center Europe (USAMMCE) at Pirmasens, Germany, for repair. Include DA Form 2407, **Maintenance Request**, with each item shipped for repair. To use this facility, the host FM account prepares DD Form 1144, **Support Agreement**, and forwards it to: Commander, United States Army Medical Materiel Center Europe, ATTN: Director for Maintenance/AEMMM-M, APO AE 09138.

2.51.11. BMETs use DD Form 1348-1, **DoD Single Line Item Release/Receipt Document**, to ship equipment or request fabrication of X-ray cables. Complete DD Form 1348-1 as shown in AFMAN 23-110, Volume 5, Chapter 12, Attachment 1.

2.51.12. When you use this form for repair and return or fabrication, fill it out as follows:

2.51.12.1. Block B: Enter the "Ship To" address of the Army medical maintenance activity to which you are forwarding the item or request.

2.51.12.2. Block Y: Indicate if certification is required by entering "CERTIFICATION REQUIRED" if the item is an X-ray tube or major component.

2.51.12.3. Block W: Enter "REPAIR AND RETURN," "FABRICATION," "LOANER RETURN," "CLEAN ONLY," or other instruction specifying the exact services you require. You will receive and be billed for complete overhaul and rebuild services unless you specify the services you need.

2.51.12.4. Block AA through CC: Enter the fund citation for work requested (coordinate with the resource manager) and signature of base accounting and finance officer.

2.51.12.5. Block 13: Enter the transportation fund citation for the item to be returned.

2.51.13. Indicate the priority of repair in columns 60-61 using the two-digit MILSTRIP priority designator listed in AFMAN 23-110, Volume 5, Chapter 8.

2.51.14. Special instructions for packing repair and return items include:

2.51.14.1. Place DD Form 1348-1 inside the shipping container.

2.51.14.2. Ship all accessories with the end item to ensure prompt repair.

2.51.14.3. Properly pack and mark the package to avoid damaging the instruments. See if the manufacturer's literature gives any special packing or shipping instructions.

2.51.15. BMETs should enter all United States Army depot charges for labor, repair parts, and transportation of medical equipment in the contract costs field of the equipment data record. See AFCSM 41-230, Volume 2 for procedures for uploading contract costs.

2.52. Using Veteran Affairs (VA) Equipment Repair Services.

2.52.1. The VA Service and Distribution Center (SDC), located in Hines, IL at the Hines VA Medical Center campus offers depot-level maintenance for selected medical devices.

2.52.2. Capabilities include dental hand piece repair, flexible and rigid endoscope repair, glassware replacement, and Janus barcode battery replacement.

2.52.3. Facilities should contact the VA SDC to receive a current shipping address prior to sending any equipment back for repair. The VA SDC can be reached at 708 786-7846 or by visiting their website, **http://www.va.gov/oa&mm/sdc**.

2.52.4. Special instructions for packing repair and return items include:

2.52.4.1. Ship all accessories with the end item to ensure prompt repair.

2.52.4.2. Properly pack and mark the package to avoid damaging the instruments. See if the manufacturer's literature gives any special packing or shipping instructions.

2.52.5. BMETs should enter all VA charges for labor, repair parts, and transportation of medical equipment in the contract costs field of the equipment data record. See AFCSM 41-230, Volume 2 for procedures for uploading contract costs.

2.53. Precision Measurement Equipment Laboratories (PMEL).

2.53.1. AFI 21-113, *Air Force Metrology and Calibration (AFMETCAL) Program*, provides procedures for managing the AFMETCAL program. Technical Order (TO) 33K-1-100-1 outlines equipment user-owner responsibilities under the Air Force PMEL program. In support of this program, selected Air Force bases establish PMELs to provide an intermediate maintenance capability for the repair, calibration, and certification of precision measurement equipment.

2.53.2. For medical facilities, PMELs work on maintenance test equipment such as oscilloscopes, voltmeters, and signal generators. PMELs also work on:

2.53.2.1. Precision measurement instruments used for medical programs other than direct patient care, such as radiation and sound level instruments used by Bio-Environmental Engineering (BEE) and scales used in the AF Fitness Program.

2.53.2.2. Scales used directly for life support, to include patient scales used in chemotherapy, infant scales used in nurseries, bed scales used to measure fluid intake and loss, and scales used in the flight medicine sections if local medical equipment maintenance activities cannot support these due to temporary staffing shortages or when tools and/or weights are currently unavailable, and the scale(s) would otherwise exceed calibration verification cycle.

2.53.2.3. Local medical equipment maintenance activities will have weights calibrated or traceable to National Institute of Standards and Technology (NIST) standards. BMETs may certify all scales within the MTF except those used for the Fitness Program (IAW TO 33K-1-100-1, Page 3-7). Scales used in other MTF areas do not require PMEL certification or complete calibration traceable to NIST standards. The local BMET is solely responsible for the maintenance of these scales; reference TO 33K-1-100-1, 3-8, (1).

2.53.3. All other items of medical equipment related to the diagnosis and treatment of patients are specifically exempt from PMEL support. The AFMS is responsible for the calibration and maintenance of these items of equipment under the provisions of this chapter. Additionally, if PMEL is not available, or is unable to perform the specified calibration/certification, the local BMET will ensure the TMDE is calibrated/certified IAW paragraph 2.17.5.3.

2.53.4. The medical equipment maintenance activity will designate a PMEL Monitor. The PMEL Monitor is responsible for ensuring all test equipment that can be calibrated by PMEL is included in the PMEL program, unless exempt IAW paragraph 2.53. Equipment included in the PMEL program will be delivered to PMEL in a timely manner. The monitor will verify PMEL equipment has a current AFTO Form 99, 108, 394, or 398, Test, Measurement and Diagnostic Equipment (TMDE) Certification, showing the item is not due for calibration.

2.53.5. The PMEL monitor will annually review and update the PMEL list of equipment to ensure all items in the device code listing and other miscellaneous support items that need calibration are included.

2.53.6. The PMEL monitor ensures the facility has in-house procedures to contact PMEL when it receives new test equipment.

Chapter 3

ESTABLISHING A MEDICAL EQUIPMENT REPAIR CENTER (MERC)

3.1. Program Elements.

3.1.1. The regional MERC program provides extensive calibration services, quality assurance surveillance, technical assistance, consulting on equipment procurement, and management assistance to all bases within a region.

3.1.2. A MERC is a consolidated maintenance activity that, in addition to providing organizational maintenance support for the facility to which it is assigned, provides intermediate maintenance, engineering support, and consulting services to active duty Air Force, Air National Guard, and Air Force Reserve Command medical activities located in its geographical region.

3.1.3. The AFML website provides a list of medical equipment maintenance activities designated as MERCs and the units within each MERC's region of responsibility.

3.1.4. Staffing requirements for MERCs are included as additives in the manpower formula for Functional Account Code (FAC) 5530, Medical Logistics. The FAC 5530 manpower formula is available on the AFML website.

3.1.5. MERCs must report to AFMLO/FOE any changes in activities they support.

3.2. Responsibilities. The chief or superintendent of the MERC:

3.2.1. Budgets and plans for all resources required for regional MERC support, including funding, staffing, facilities, vehicles, and test equipment requirements.

3.2.2. Ensures intermediate maintenance support is provided to all medical activities in the designated geographical region of responsibility.

3.2.3. Conducts management assistance visits at all active duty, ANG, and AFRC locations in the MERC's region of responsibility according to this chapter.

3.2.4. Informs MAJCOMs and AFMLO/FOE of problems that may keep the MERC from accomplishing its mission as outlined in this chapter.

3.3. Scheduled MERC Functions.

3.3.1. MERCs furnish organizational maintenance to those medical facilities that do not have BMETs assigned.

3.3.1.1. MERCs will provide maintenance teams annually and emergency repair service upon request.

3.3.1.2. The MERC will provide guidance to supported bases on how to obtain non-emergency minor service.

3.3.1.3. MERCs may provide organizational maintenance for AFRC medical activities on an annual basis.

3.3.2. The MERC will provide intermediate maintenance/training annually to all medical facilities in their designated area that have BMETs authorized and assigned. MERCs will notify these bases 30 days before the scheduled visit. The MERC performs the following:

3.3.2.1. Provides on-site calibration service for audiometers and x-ray equipment, to include dental and mobile systems. Audiometers must be calibrated every 365 days or less IAW ANSI S3.6-1996. If the MERC is unable to meet this timeline, it must notify the local facility so alternative arrangements can be coordinated. The MERC will perform Post Calibration Radiation Inspections (PCRI) on all X-ray systems on contract for calibration. On-site calibration will also include any equipment the local maintenance activity lacks the test equipment to perform.

3.3.2.2. Performs quality assurance (QA) testing on anesthesia equipment, picture archiving and communication systems (i.e. monitors and computed radiography devices), and ventilators to include WRM, MC-CBRN, AE, and PMI assets. At the discretion of the supporting MERC, additional QA testing may be performed based on experience and skill level at the MTF. Note: For the purpose of QA testing, the MERC will test 10 percent, but not less than 2 devices from each equipment category listed above. For those MERCs that support PMI centers, the MERC shall test at least 4 devices from each equipment category, and these items are not to be included in the 10 percent calculation for the organization. If the MERC notes a major procedural or test equipment deficiency in any sample selected, the MERC will provide training and assist in testing all items in the equipment group. If items are on contract, the local BMET notifies the contractor of the discrepancy and requests the contractor to recalibrate the equipment.

3.3.2.3. Perform complete calibration verifications and post calibration radiological inspections.

3.3.3. MERC Chiefs may add additional calibration, training, and QA services to this list as necessary in their region. When adding a service to this list, the MERC should send a description of the test procedure and required test equipment to AFMOA/SGALE for review.

3.3.4. MERCs document work accomplished and repair parts issued according to this instruction.

3.3.4.1. The supported organization processes this data into the MEDLOG/DMLSS system.

3.3.4.2. MERC personnel make the required entries on AF Form 509, **Medical Equipment Maintenance Record**, for supported activities that are not automated. These entries describe the exact maintenance actions performed.

3.4. Other MERC Functions. Bases within the region can request the MERCs to:

3.4.1. Provide technical assistance to resolve maintenance problems beyond the capability of the local BMET.

3.4.2. Provide consultation and technical services in critical areas of medical instrumentation and electrical safety.

3.4.3. Conduct pre-procurement surveys for planned complex equipment procurement such as X-ray units, sterilizers, and central patient monitoring systems beyond the capability of the local BMET.

3.4.4. Install major equipment systems such as X-ray units, sterilizers, and physiological monitors when contract services cannot be obtained or when in-house BMETs cannot install the item.

3.4.5. Conduct equipment acceptance inspections for contractor-installed major equipment items.

3.4.6. Provide equipment consulting service for medical logistics activities procuring complex medical instrumentation.

3.4.7. Assist regional Health Facility Office in selecting equipment for military construction programs.

3.4.8. Provide organizational maintenance support (manning assistance) for short periods when in-house maintenance activities do not have enough personnel to accomplish the mission.

3.4.9. Provide backup medical equipment maintenance support in the event of natural disasters.

3.4.10. Give emergency assistance in base closure or expansion actions.

3.4.11. Provide assistance and consulting services in all aspects of medical equipment management, such as medical equipment acquisition, personnel assignments, and unique organizational management situations as requested by MAJCOMs.

3.5. MERC Trip Reports.

3.5.1. The MERC prepares a trip report reflecting maintenance actions accomplished or currently pending. The trip report keeps the base up to date on maintenance activities. ***NOTE:*** The reporting requirement in this paragraph is exempt from licensing in accordance with AFI 33-324, *The Information Collections and Reports (ICR) Management Program; Controlling Internal, Public and Interagency Air Force Information Collections.*

3.5.2. Number MERC trip reports consecutively beginning with the start of each fiscal year. For example, 03001 would be the first report prepared in FY 03.

3.5.3. Contents of the MERC Trip Report.

3.5.3.1. The trip report will include the purpose of the visit, key personnel contacted, and an executive summary with all items of interest to the MTF commander (major safety violations, equipment problems, and other matters). It will also include a work-hour and dollar value summary of services performed. ***NOTE***: When the MERC visits more than one facility in a single trip, base the distribution of per diem and travel expenses on the relative percentage of total work-hours expended at each facility. Sample trip report and cover letter can be found on the AFML website.

3.5.3.2. The report attachments will include the MERC services report, equipment discrepancies, work performed, calibration and test equipment used, and copies of all calibration documentation.

3.5.4. Distribution. Provide the report to the MTF commander of the supported base within 45 days of completing each maintenance visit. Send an electronic copy of the report, with attachments, to each applicable MAJCOM functional manager and to AFMLO/FOE. Send copies of the Radiology Technical Attachment to the medical physicist in your region for review. Contact list for regional physics support can be found on the AFML website. When the trip includes visits to the Air National Guard and Air Force Reserve, send a copy of the report to the visited unit and the appropriate headquarters.

3.5.5. Supported bases respond in writing to items identified in the reports that require local action. Send the response to the MERC within 45 days of receiving the report. Send a copy of this letter, by postal or electronic mail, to the MAJCOM and to AFMLO/FOE.

3.5.6. MERCs maintain copies of completed trip reports for 2 years.

3.6. MERC Assistance Visits (MAV).

3.6.1. In addition to providing maintenance services, the MERC can provide management and consulting service to supported activities, when requested and coordinated through AFMOA/SGALE.

3.6.2. While MERCs are always available to answer questions through telephone conversations and correspondence, an additional resource available to active duty base level medical maintenance activities are annual visits from the MERC Chief or Superintendent. ANG/AFRC activities may request a site visit from their supporting MERC.

3.6.3. During this site visit, the MERC Chief or Superintendent evaluates the management of the organizational Maintenance and Facility Management Programs.

3.6.4. The MERC chief or superintendent reviews and evaluates:

3.6.4.1. Maintenance management procedures, documentation and metrics.

3.6.4.2. The Scheduled Maintenance Program and general condition of in-use equipment.

3.6.4.3. The Equipment Electrical Safety and User-Training Program, and makes recommendations to the MTF Education and Training Function where appropriate.

3.6.4.4. Repair parts inventory management, including inventory accuracy and the actual dollar value of the repair parts inventory.

3.6.4.5. Contract maintenance files to determine whether each contract is necessary and/or adequate, considering the skills and training of assigned Maintenance Personnel. Reviews all provisions of Equipment Maintenance Contracts and calculates maintenance contract ratios as detailed below.

3.6.4.5.1. Compute the ratio of total value of medical equipment assets to total annual cost of maintenance contracts.

3.6.4.5.2. Compute the ratio of total value of medical equipment covered by contract maintenance by the total annual cost of maintenance contracts.

3.6.4.6. The adequacy of current maintenance personnel by rank and skill levels, shop facilities, and test equipment.

3.6.4.7. Individual training records, the sections master training plan, technical training requirements, and status of the RSVP.

3.6.4.8. Quality assurance program status. Verifies each activity is using the ECRI On-Line Membership Service for access to all equipment alerts and that each activity is also using MMQC tracker alerts.

3.6.4.9. Major equipment acquisitions, installations, maintenance management plans, and current installation problems or delays.

3.6.4.10. The adequacy and compliance of environment of care plans (if applicable); which address safety, security, fire prevention, medical equipment, utility systems, emergency management, and hazardous materials and waste. Use the facility management self inspection checklist to conduct the facility management portion of the site visit.

3.6.4.11. Evaluate the age, condition, and adequacy of the local maintenance activity's test equipment.

3.6.4.12. Review customer service-related surveys, and conduct departmental visits to assess the level of customer satisfaction with medical maintenance.

3.6.4.13. Review the UMD to ensure the appropriate level of staffing exists at the maintenance activity for the volume and scope of the work. Forward a copy of the UMD to the MAJCOM Functional Manager and AFMOA/SGALE.

3.6.5. Forward the written results of this evaluation electronically to the supported activity, AFMOA/SGALE, MAJCOM functional manager, and AFMSA/SG8F indicating the findings and recommended actions.

3.7. Reducing or Terminating MERC Support.

3.7.1. MERC activities will not abruptly terminate or reduce the level of support provided to activities. When MERCs anticipate an unavoidable reduction in support, they must coordinate with the supported activity and the MAJCOM functional manager at least 120 days before the scheduled visit.

3.7.2. The notice must fully explain the anticipated reduction in service and tell how long service will be reduced or interrupted. Inform the supported activity that it should arrange for equipment calibration by bringing the equipment to the MERC or by using contract support.

3.7.3. Send copies of the notice to the MERC's MAJCOM functional manager, each supported activity's MAJCOM, and AFMLO/FOE.

3.7.4. The MAJCOM functional manager responsible for the supporting MERC will initiate actions to correct the reduction of support. Inform AFMLO/FOE of the anticipated "get well" date. If MAJCOM cannot resolve the problem on its own, it forwards recommendations to AFMLO/FOE.

3.8. Responsibilities of the MERC-Supported Base.

3.8.1. Units supported by MERC activities will:

3.8.1.1. Notify the MERC of any new equipment acquired that needs additional MERC support.

3.8.1.2. Inform the facility commander, administrator, and MLFC of an upcoming MERC visit. Ensure these individuals understand what services the MERC will provide.

3.8.1.3. Inform departments that have equipment requiring MERC calibration of an impending MERC visit as soon as possible in order to minimize disruption to patient care.

3.8.1.4. Print work orders or have AF Form 509, **Medical Equipment Maintenance Record**, available so MERC personnel can complete the documentation as the work is performed.

3.8.1.5. Complete PMs on equipment to be calibrated by the MERC prior to the team's arrival.

3.8.1.6. Have WRM equipment (X-ray units, isolation shelter, power generator, anesthesia, etc.) that is scheduled for calibration by the MERC team set up and operational prior to arrival.

3.8.1.7. Ensure battery operated equipment has been fully charged.

3.8.1.8. Locate the equipment requiring calibration/certification prior to the MERC team's arrival. Introduce the equipment custodians to the team members.

3.8.1.9. If requested, make billeting arrangements for the MERC team.

3.8.2. Local BMETs will review the MERC technical and management assistance visit (MAV) trip reports. Take appropriate actions as required, and respond in writing to items identified in the reports as requiring local action. Use item nomenclature, index number, manufacturer, discrepancy, and corrective action as applicable. Send the response to the MERC within 45 days of receiving the technical report and/or the MAV report. Send a copy of this response to the MAJCOM functional manager and to AFMLO/FOE.

Chapter 4

ESTABLISHING A FACILITY MANAGEMENT (FM) PROGRAM

4.1. Program Elements.

4.1.1. The FM support program ensures that the Air Force acquires, operates, repairs, maintains, alters, and cleans its medical buildings and associated utility, transport, and communication systems in a manner that provides the most suitable and productive environment for normal and anticipated contingency operations.

4.1.2. Accomplishment of this function requires careful attention to the following concepts:

4.1.2.1. Life Safety. Building systems must function reliably, safely, and meet applicable codes and standards. Life safety issues protect patients, staff, and visitors against undue risk of fire or other hazards.

4.1.2.2. Medical Functionality. People and equipment must have adequate and efficiently used space. Patients must have convenient physical access to facilities.

4.1.2.3. Engineering. The physical plant must be properly operated, repaired, and maintained. This includes preventive maintenance, repair, alteration, and replacement of the buildings and associated utility systems. The facility must be operated and maintained in a manner that conserves resources, prevents contamination of the surrounding environment, and prevents injury to patients, visitors, or staff.

4.1.2.4. Professional Environment. The interior and exterior appearance must be aesthetically pleasing to patients and enable the staff to deliver high quality medical care. Exterior landscaping must be attractive and kept neatly trimmed and clean.

4.1.2.5. Safety and Resource Protection. The facility must be operated and maintained to provide a safe environment for patients, visitors, and staff. Provide adequate security measures for the protection of Government facilities, property, and personnel.

4.1.2.6. Documentation. Maintain a program of documentation that meets regulatory and accreditation requirements as well as the administrative needs of the FM program.

4.2. Responsibilities of the Facility Manager.

4.2.1. The clinical engineering officer, noncommissioned officer (NCO) with an AFSC of 4A271 in the grade of Technical Sergeant or greater, or civilian designated as the facility manager implements and manages the FM program. Other AFSCs may be appointed upon approval by the MAJCOM. Air National Guard and Air Force Reserve Command units may assign any individual to serve as the facility manager.

4.2.2. The facility manager:

4.2.2.1. Serves as the liaison with outside support agencies such as the regional health facilities office (HFO), base civil engineer (BCE), base communications, base contracting, civil engineer fire protection flight, wing safety, and security forces.

4.2.2.2. Responsible for financial planning, programming, budgeting, and monitoring of expenses within FM. This process begins with an accurate real property inventory. The facility manager is responsible to ensure an annual real property inventory is conducted by end of July and real property records in DMLSS are reconciled with the BCE Automated Civil Engineer System (ACES) IAW DODI 4165.14 and AFI 32-9005. ACES is the system of record for DoD funding models and must accurately reflect the medical inventory and facility requirements. Prepares estimates for the annual MTF budget. Estimates cover routine operation & maintenance (O&M) programs, real property services (RPS), and the sustainment, restoration and modernization (SRM) program for day-to-day maintenance, life cycle repairs, restoration, and modernization of medical real property assets. Refer to paragraph 4.4.

4.2.2.3. Serves as, or supervises, the safety officer or safety NCO and is a member of the MTF Environment of Care Committee.

4.2.2.4. Ensures compliance with standards published by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), Accreditation Association for Ambulatory Health Care (AAAHC), National Fire Protection Association (NFPA), Occupational Safety & Health Administration (OSHA), United States Environmental Protection Agency (EPA), and AFI 91-301, Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program.

4.2.2.5. Identifies modifications necessary to keep the facility in compliance with federal, state, and local regulations.

4.2.2.6. Manages the housekeeping function if performed with in-house personnel. Serves as or oversees the quality assurance personnel if a contractor performs housekeeping services.

4.2.2.7. Manages the MTF security and resource protection program.

4.2.2.8. In smaller MTFs that do not have a separate Medical Information Systems Flight, the facility manager normally oversees the acquisition, installation, and maintenance of the telephone network and communications systems in the MTF. The facility manager may also manage the facility land mobile radio (LMR) network, to include cellular phones and pagers, and serve as a representative on the base communication's Computer Systems Requirements Board. ***NOTE:*** Although communication systems are historically an FM responsibility, many MTFs have moved this function to Information Systems. The MTF Medical Support Squadron Commander makes the final determination as to which activity (FM or Systems Flight) is best suited to perform this function at the local level.

4.2.2.9. Reviews BCE or other centralized contracts that provide the MTF with refuse collection, elevator maintenance, hood and duct cleaning, and other services.

4.2.2.10. Manages the MTF and grounds maintenance programs, to include snow and ice removal.

4.2.2.11. Prepares and sends work requests to BCE and/or other support engineers providing facility maintenance and follows up on work requests.

4.2.2.12. Develops and maintains a long-range medical facility development plan (MFDP) that includes all known unfunded facility project requirements to be funded with military construction (MILCON) or operation and maintenance (O&M) funds for the Future Year Defense Plan (FYDP) + 2 years. Ensures these projects are entered in the BCE ACES-PM system, and an ACES project number is assigned to each project. Unfunded sustainment, restoration and modernization projects will impact the building Q-Rating. The facility manager is responsible for ensuring each medical building has an appropriate Q-Rating entered in DMLSS and assigned in ACES. The facility manager will need to coordinate with the Health Facilities Division to capture all known requirements. Refer to paragraph 4.16.

4.2.2.13. Maintains a set of current architectural drawings, plans, diagrams, and other records for each facility designated with a medical real property category code (5XX-XXX). Has access to other drawings, as necessary, including drawings that show all utility shut-off valves and controls. Maintains the drawings in either paper or electronic versions.

4.2.2.14. Ensures all as-built drawings provided to the MTF at the completion of a project are delivered in electronic format. The electronic drawings must be in a format compatible with the Defense Medical Logistics Standard Support - Facility Management (DMLSS-FM) system. Preferred drawing file format is Drawing Exchange Format .DXF.

4.2.2.15. Serves as the real property building manager for the MTF and member of the Medical Facility Utilization Board, if one exists.

4.2.2.16. Develops Performance Work Statements (PWS) for facility requirements that base activities do not support. ***NOTE:*** Many PWS templates are available on the AFML website.

4.2.2.17. Reviews proposed equipment installation requirements and determines facility and utility modifications required. Initiates necessary work requests to BCE prior to equipment procurement.

4.2.2.18. Where required by occupancy classification (in accordance with JCAHO, AAAHC and NFPA requirements), ensures the emergency power system is adequate and reliable to provide power to designated areas during interruption of the normal power source for the facility.

4.2.2.19. Develops and manages the energy conservation program.

4.2.2.20. Manages the proper removal, treatment, storage, and disposal of regulated medical waste.

4.2.2.21. Serves as a member of the Infection Control Committee.

4.2.2.22. Ensures the DMLSS-FM system is fully utilized and kept up-to-date by facility management and maintenance personnel. Ensures DMLSS real property records and unfunded project requirements are reconciled with BCE ACES, as needed. ACES and DMLSS real property records must match.

4.3. Inspection Program.

4.3.1. The Air Force MTF inspection program works on a building block concept from self-inspection and management assistance visits to the combined HSI/JCAHO survey.

4.3.2. Self-Inspection. The facility manager will develop a self-inspection checklist and perform annual self-inspections to ensure the function is well managed.

4.3.2.1. Self-inspection is an organized method of internal review that allows a manager to view critical areas and available resources. The facility manager can assess the operation without influence from outside the organization.

4.3.2.2. The self-inspection focuses on the mission, resources, training, and personnel within the department. The facility manager uses the self-inspection to identify and resolve problems before a MERC Assistant Visit a JCAHO or AAAHC survey, or other upcoming inspection.

4.3.3. Management Assistance Visit (MAV). The MAV is an informal but very important assessment that helps functional areas comply with regulations and identifies problem areas needing attention prior to any formal inspection. Refer to paragraph **3.6** for more information regarding the MAV.

4.3.3.1. MERCs may perform the MAV using checklists, JCAHO and AAAHC standards, NFPA codes, and other applicable documents.

4.3.3.2. Facilities are accountable for resolving findings identified during a MAV.

4.3.3.3. Facility managers maintain copies of MAV reports for 3 years.

4.3.4. Health Services Inspection (HSI). The objective of the HSI is to inspect for compliance with existing policy to ensure that the MTF is providing quality medical care. The Air Force Inspection Agency's Medical Operations Directorate headquartered at Kirtland AFB, New Mexico conducts HSIs of all active duty, Guard, and Reserve medical units worldwide in partnership with JCAHO. After an inspection, the HSI team generates a findings report and provides it to the commander of the facility. Obtain copies of this report from the resource management officer (RMO). ***NOTE:*** The HSI Guide is updated annually and is available on the Air Force Inspection Agency (AFIA) website at **https://www-4afia.saia.af.mil/Medical-Operations/sg-index.htm**.

4.3.5. JCAHO and AAAHC Surveys. The facility manager ensures the facility complies with all JCAHO Environment of Care standards and any other applicable sections of the current JCAHO Comprehensive Accreditation Manual for Hospitals. Clinics must comply with the Comprehensive Accreditation Manual for Ambulatory Care.

4.4. Financial Management.

4.4.1. The facility manager is responsible for financial planning, programming, budgeting, and monitoring of expenses within FM.

4.4.2. The facility management budget process begins with an accurate real property inventory. The facility manager is responsible for conducting an annual real property inventory and ensuring DMLSS-FM real property physical description is accurately and fully

completed for all buildings that are AFMS responsibility (i.e. to include Vet Clinics, WRM warehouses, plant/energy buildings, etc.). Guard and Reserve buildings should not be included on the inventory, nor should Drug Demand Reduction buildings, Gymnasiums (HAWCs), or Physiological Training buildings, as examples. The BCE ACES database is the system of record for DoD funding models to determine future year medical SRM funds. The facility manager is responsible to ensure ACES accurately reflects the medical inventory. Discrepancies between ACES and DMLSS must be corrected at the local level with BCE.

4.4.2.1. The budget submission must include materials, labor, supplies, utilities, BCE and/or other engineering support reimbursables, construction, and all contract service costs. Break down the items by Element of Expense/Investment Code (EEIC). The budget includes all expected expenses and clarifies for the RMO how the estimates were derived.

4.4.2.2. AFMLO/FOE provides a list of EEIC expenditures to include in a FM budget. This list is designed to help the facility manager and need not be all-inclusive. Individual MTFs may have requirements unique to their facility.

4.4.2.3. The facility manager coordinates the budget needs with the MTF using activities.

4.4.3. SRM and MILCON funds are computed for each building based on DoD funding models. These models are used to determine future year requirements and budgets. The AFMS receives funds from Health Affairs (TMA) based on these models. The facility manager is responsible to ensure that all buildings or spaces within a building that is medical funded are coded in ACES by the BCE Resources Flight as Fund Organization 2H (TMA: TRICARE MANAGAMENT ACTIVITY) and Funding Code 0130 (DHP: DEFENSE HEALTH PROGRAM) for Sustainment, Restoration and Modernization (SRM) and 0500 (MILCON) for replacement. Each real property record will need to be individually changed in ACES if the fund organization codes and funding codes are incorrect. Ensure all AFMS buildings are accurately coded in ACES before DHP funds are utilized for BCE reimbursements and utilities. Validate with BCE on a quarterly basis that AFMS real property records are accurately coded in ACES and maintain verification (ACES screen shot or ACES report) for audit purposes.

4.4.3.1. **(DELETED)**

4.4.3.2. **(DELETED)**

4.4.3.3. **(DELETED)**

4.4.3.4. **(DELETED)**

4.4.3.5. Request BCE Resources Flight validate on a quarterly basis that all AFMS real property inventory is properly coded in the ACES before reimbursements and utility bills are processed. Each AFMS building must be coded as the following before DHP funds can be utilized:

4.4.3.5.1. Funding Organization: 2H - TRICARE MANAGEMENT ACTIVITY for Sustainment, Restoration & Modernization (SRM).

4.4.3.5.2. Funding Code: 0130 - Defense Health Program (DHP) for Sustainment and Restoration & Modernization.

4.4.3.5.3. Funding Code: 0500 - MILCON for replacement.

4.5. Environment of Care (EOC) Committee.

4.5.1. The MTF commander or administrator will appoint an EOC Committee in writing with representatives from administration, clinical services, nursing services, and support services.

4.5.1.1. The MTF commander, administrator, deputy commander, or medical support squadron commander chairs the committee.

4.5.1.2. The department or section chairperson, the officer in charge (OIC), or his or her senior enlisted member usually serves as the representative for the EOC Committee.

4.5.2. The EOC Committee will meet periodically at a frequency determined during an annual review of the effectiveness of the committee with appropriate membership as required by JCAHO Safety Management Plan, AFOSH Standard 91-8, *Medical Facilities*, and AFI 41-203, *Electrical Safety in Medical Treatment Facilities*.

4.5.3. The EOC Committee evaluates safety discrepancies, develops recommendations for corrective action, and ensures corrective measures are implemented and effective.

4.5.4. The EOC Committee oversees accident and injury investigations, ensuring that the MTF quickly reports and resolves dangerous situations that pose a threat to life, health, and property.

4.5.5. The EOC Committee reviews and approves departmental safety policy.

4.5.6. The EOC Committee develops MTF safety policies and standards to be implemented when approved by the MTF executive committee.

4.5.7. The EOC Committee ensures the identification and elimination of hazards through a risk assessment program. The risk assessment program evaluates the risk to patient care and safety of the equipment, buildings, grounds, and internal building system. This risk assessment shall also incorporate any remodeling or construction projects.

4.5.8. The EOC Committee develops, reviews, and evaluates safety education and fire prevention programs.

4.5.9. The EOC Committee assesses equipment failures or user errors that result in an incident report and reviews relevant equipment hazard reports.

4.5.10. The EOC Committee evaluates the effectiveness of the MTF safety program annually.

4.5.11. The EOC Committee sets policies and procedures for all required JCAHO EOC management programs and evaluates each programs' effectiveness at least annually.

4.6. Safety Program.

4.6.1. The MTF safety program ensures a safe environment for patients, staff, and visitors and reduces the risk of human injury in the facility or on the grounds.

4.6.2. The facility manager oversees the development, implementation, and monitoring of the MTF facility safety management program, collects and evaluates hazard and safety practice information so the environment of care committee can address pertinent safety management issues, and may be the safety officer or may supervise an individual assigned as safety officer.

4.6.3. The current MTF commander will appoint a safety officer in writing. The importance of patient, visitor and staff safety in the MTF environment and the demanding responsibilities associated with this appointment frequently require the need for a full-time safety officer. ***NOTE:*** The MTF's risk manager handles medically related patient safety issues such as medication errors and use of restraints. The primary focus of the MTF safety officer is the physical environment of care.

4.6.4. This appointment authorizes the safety officer to intervene when physical conditions pose an immediate threat to life or health or poses a threat of damage to equipment or buildings. The safety officer will immediately notify the administrator, deputy commander, or medical support squadron commander as applicable when such a condition exists.

4.6.5. Responsibilities of the Safety Officer.

4.6.5.1. Serves as the point of contact for the medical facility on ground safety matters, inspections, and investigations and works with the base ground safety office.

4.6.5.2. Communicates with bioenvironmental engineering, environmental health, public health, and infection control on MTF safety issues and requests technical advice, when necessary. (See AFI 91-202, *The US Air Force Mishap Prevention Program*; AFI 91-204, *Safety Investigations and Reports;* AFI 91-213*, Air Force Operational Risk Management Program;* and AFI 91-301, *Air Force Occupational And Environmental Safety, Fire Protection, And Health Program*.)

4.6.5.3. Completes and submits an appropriate ground mishap report in accordance with AFI 91-204, *Safety Investigations and Reports*, to the wing safety office for reportable mishaps that occur on MTF grounds.

4.6.5.4. Ensures there is a program for distributing medical device recalls and hazard alert notices. Makes sure that personnel follow the recommended procedures and document corrections. ***NOTE***: Medical stock records personnel (supplies) and BMETs (equipment) distribute recalls and hazard alerts IAW paragraph **2.34**.

4.6.5.5. Ensures all medical facility personnel receive initial and annual refresher safety training and that supervisors document all safety training on AF Form 55, **Employee Safety and Health Record** in accordance with AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Prevention and Health (AFOSH) Program*. Reviews departmental safety briefings and newcomers orientation programs.

4.6.5.6. Conducts and documents facility safety surveys of all MTF buildings twice a year. Identifies and corrects environmental hazards and unsafe practices (see AFOSH Standard 91-8, *Medical Facilities*, Paragraph 16.2.2).

4.6.5.7. Ensure staff members complete and submit AF Form 765, **Hospital Incident Statement**, to the patient safety officer or risk manager for each reportable incident involving patients, visitors, or staff that occurred on the grounds of or in any of the assigned MTF buildings.

4.6.5.8. Summarizes safety actions and Environment of Care Committee activity on a quarterly basis. Provides the summary to the executive committee, the administrator, and other responsible monitoring activities, including quality assurance and risk management office.

4.6.5.9. Maintains safety reference materials that include appropriate JCAHO and NFPA guidance, Air Force safety instructions, AFOSH Standards, and local and wing safety policies.

4.6.5.10. Actively participates in Environment of Care Committee meetings. Periodically presents the status of all aspects of the safety program to the committee, including results of and follow-up actions on inspections by outside agencies.

4.6.5.11. Monitors the fire prevention and protection program. Serves as area fire marshal as outlined in AFI 32-2001, *The Fire Protection Operations and Fire Prevention Program*, and local procedures for fire safety and fire response inspections, drills, and training. Reports the results of all fire exit/response drills to the Environment of Care Committee.

4.6.5.12. Reviews waste handling practices during facility safety surveys to make sure all areas comply with the MTF hazardous materials and regulated medical waste management program. Ensures that supervisors are documenting hazardous materials and regulated medical waste training on AF Form 55, **Employee Safety and Health Record**.

4.7. Fire Protection and Prevention Program.

4.7.1. The facility manager oversees the MTF's fire prevention and protection programs and will coordinate with Fire Protection Flight and BCE on fire and life-safety issues to protect the well being of patients, staff, and visitors.

4.7.2. AFI 32-2001, *The Fire Protection Operations and Fire Prevention Program,* governs the overall base fire protection program to prevent fire and reduce loss to personnel, property, and materials. The MTF requires additional protection beyond that provided in the base program due to the limited mobility of ill and bedridden patients.

4.7.3. The facility manager establishes a fire prevention and protection program to maintain fire safety in the medical facility, ensures and documents code compliance, carefully reviews design and construction of MTFs, oversees inspection and testing of fire warning/suppression systems, develops fire protection and evacuation plans, and oversees MTF staff education. ***NOTE***: Within the ANG, the base civil engineer assumes facility management responsibilities and may assign this duty to a member of his or her staff.

4.7.4. Life Safety Code® (LSC). Each MTF building that houses patients overnight or where patients receive treatment must comply with the appropriate provisions of NFPA 101, *Life Safety Code*, as required by the current JCAHO Comprehensive Accreditation Manual for Hospitals or Ambulatory Care, as applicable.

4.7.4.1. To locate possible LSC violations, FM prepares a comprehensive Statement of Conditions (SOC) describing the characteristics of fire protection features for each building requiring an SOC. AFMSA/SG8F may be able to provide assistance upon request.

4.7.4.2. If LSC violations exist, the facility manager will develop a plan for improvement and implement interim life safety measures (ILSM) to correct these deficiencies IAW JCAHO standards. The facility manager coordinates this plan with the civil engineer fire protection flight.

4.7.4.3. The facility manager develops and documents an effective inspection process that identifies and maintains the fire protection features required by LSC that apply to the particular type facility.

4.7.4.4. A qualified fire inspector inspects the facility at least annually for compliance with NFPA standards.

4.7.4.5. The facility manager maintains drawings or documents showing the locations of fire protection features in the facility. The facility manager ensures drawings are updated with every change to the facility and makes them available to facility management and BCE personnel.

4.7.5. Fire Safety Program. The facility manager will review effectiveness of the fire safety management program annually and summarize the program for the MTF EOC Committee.

4.7.5.1. Document problems identified in the fire safety program as well as the actions taken to correct the problems in committee minutes and appropriate program folders.

4.7.5.2. The facility manager implements the MTF commander's smoking policy in accordance with Air Force and JCAHO guidance.

4.7.5.3. The facility manager assesses all interior design furnishings, wall and floor coverings for NFPA code compliance (flame spread, combustibility, etc.). ***NOTE***: Use NFPA 101 as a guide for conducting this review as well as the appropriate section of the relevant occupancy chapter.

4.7.6. Fire Detection and Alarm System. FM ensures the installation, testing, and maintenance of the fire detection and alarm system is in accordance with NFPA 101, *Life Safety Code,* NFPA 72, *National Fire Alarm Code,* AFJI 32-1059, *Maintenance of Fire Protection Systems,* and UFC 3-600-02, *Unified Facilities Criteria: Inspection, Testing, and Maintenance fo Fire Protection Systems*.

4.7.6.1. FM coordinates with the base civil engineer fire protection flight to establish schedules for testing, inspecting, and maintaining all fire alarm and fire detection systems.

4.7.6.2. The facility occupancy classification may require the fire alarm or detection system to include devices that minimize smoke transmission when activated. As applicable, verify the proper operation of designated fans, duct system dampers, smoke barrier doors, and smoke management systems.

4.7.7. Fire Extinguishing Systems. The facility manager ensures all automatic fire-extinguishing systems are inspected, tested, and maintained, in accordance with AFOSH 91-56, *Fire Prevention and Protection*, NFPA 13, *Standard for the Installation of Sprinkler Systems*, and NFPA 25, *Standard for Inspection, Tesing, and Maintenance of Water Based Fire Protection Systems*. Inspect all automatic systems such as fire sprinkler systems and kitchen dry chemical discharge systems.

4.7.7.1. The facility manager develops a program to manage portable fire extinguishers. The program incorporates NFPA and JCAHO guidance for identifying, placing, using, and performing preventive maintenance on extinguishers. The civil engineer fire protection flight trains personnel on use of portable extinguishers.

4.7.7.2. Inspect portable fire extinguishers approximately every 30 days and document this inspection. NFPA 10, *Standard for Portable Fire Extinguishers*, provides guidance on how to conduct portable fire extinguisher inspection, testing, and maintenance.

4.7.8. Fire Response Plan. The facility manager develops a written fire plan informing the staff exactly how they should respond to a fire emergency. This plan includes: the type of fire alarm in the building and its distinctive sound, MTF staff responsibilities in the event of fire, departmental responses to fire alarms, numbers and sections to call to report a fire, evacuation procedures and responsibility, use of portable fire extinguishers, assembly areas, and staff member education on the fire plan.

4.7.9. Fire exit/response drills. The facility manager conducts and documents fire exit/response drills in accordance with NFPA, JCAHO and AAAHC guidelines. The number of fire exit/response drills shall be appropriate for the buildings occupancy classification and the hazards present.

4.7.9.1. Design the fire exit drills to test how well the MTF staff understands and can use the facility's fire alarm and protection systems.

4.7.9.2. During fire exit drills, the safety officer or designated evaluator checks proper alarm transmission, smoke and fire containment procedures, evacuation to areas of refuge, fire extinguisher use, and evacuation preparation.

4.7.9.3. Document fire exit drills by stating date and time of the drill, location, personnel participating (number and sections), staff actions during drill, problems identified, corrective actions taken, and an overall assessment of drill procedures.

4.7.9.4. The facility manager must ensure fire drill documentation is reviewed at least annually for efficacy and to identify areas for improvement.

4.8. Security and Resource Protection.

4.8.1. The security and resource protection program protects patients, staff, visitors and property and minimizes loss, theft, and damage to Air Force resources.

4.8.2. FM plans an MTF security and resource protection program in accordance with AFI 31-101, *The Air Force Installation Security Program*.

4.8.3. The facility manager oversees medical facility security. The facility manager coordinates building security plans with Security Forces, who evaluate the program and recommend appropriate security measures.

4.8.4. FM maintains a file with an initial facility evaluation and subsequent surveys of resource protection by Security Forces.

4.8.5. An effective security program for a medical facility includes:

4.8.5.1. Protecting patients, staff, visitors, facilities, equipment, supplies, and private property.

4.8.5.2. Active participation by the administrator or medical support squadron commander in the base Resources Protection Committee.

4.8.5.3. Conducting a resource protection survey by Security Forces as required.

4.8.5.4. Implementing recommendations made by Security Forces.

4.8.5.5. Appointing a resource protection officer in writing.

4.8.6. Security Forces may help the facility manager to plan, coordinate, implement, and monitor a security program.

4.8.6.1. Ensure proper lighting for entrances, parking lot, and sidewalks.

4.8.6.2. Ensure appropriate procedures are in place to secure entrances after normal duty hours.

4.8.6.3. Ensure adequate protective measures are planned for and implemented during emergency incidents according to the MTF's Medical Contingency Response Plan and AFI 10-211, *Civil Engineer Contingency Response Planning*. The security program may use MTF personnel as augmentees in a security team in case of an emergency incident.

4.8.6.4. Ensure appropriate security alarm systems, vaults, and safes are included in the resource protection plan as necessary.

4.8.6.5. Ensure adequate physical security measures are in place to protect critical utility systems, such as emergency generators, medical gas supply, fuel supply, or primary electrical distribution systems. Control access to radio base stations, overhead paging systems, and telephone closets.

4.8.6.6. Report thefts and security protection problems.

4.8.7. Facility managers ensure intrusion detection equipment is located, installed, and tested in accordance with AFI 31-101, *The Air Force Installation Security Program,* in order to protect sensitive or high value medical facility material and equipment.

4.8.8. Establish and maintain a key control program for the management of MTF facility keys and combinations. FM safeguards, issues, documents, conducts annual inventories, and recovers all keys issued to MTF personnel.

4.8.8.1. Specify which organizational level may issue keys. FM maintains documentation showing personnel authorized to receive keys and written receipts for keys issued.

4.8.8.2. The facility manager requires individuals who have keys or combinations to turn in their keys or combinations if they are departing, reassigned within the MTF, or as directed by the MTF commander, squadron commander, or first sergeant.

4.8.9. Institute a program for marking equipment to prevent theft and unauthorized use of government property. The Medical Equipment Management Office (MEMO) marks equipment in accordance with procedures in AFMAN 23-110, Volume 5, Chapter 18.

4.9. Emergency Management.

4.9.1. An emergency management plan defines what MTF personnel must do in case of either an internal or an external emergency incident.

4.9.2. An "emergency incident" is any situation that seriously overloads or threatens the routine operation of a MTF.

4.9.3. The main objective of emergency management planning is to use local resources efficiently. An effective emergency management plan prepares the facility manager for dealing with the early phases of an actual incident.

4.9.4. In Air Force MTFs, the emergency management plan is known as the Medical Contingency Response Plan (MCRP) and is maintained by the Medical Readiness Office. The MCRP covers internal and external emergency incidents: Examples of internal incidents include fire or explosion in the facility, while external incidents could include transportation accidents or natural disasters.

4.9.5. The Medical Readiness Office shall consult the facility manager on parts of the MCRP affecting the MTF physical plant or its utility systems.

4.9.6. The facility manager is responsible for Annex J - Facilities Management Team of the MCRP.

4.9.7. Coordinate the annex with BCE and make sure it corresponds to the BCE Contingency Response Plan outlined in AFI 10-211.

4.9.8. Review other MCRP annexes to see what facility support those departments need.

4.9.9. Under the MCRP, the facility manager may be tasked to support:

4.9.9.1. Communications, either with the internal telephone system or two-way radio

4.9.9.2. Security and facility access by security police or a designated manpower pool

4.9.9.3. Vehicular traffic control by security police or a designated team

4.9.9.4. Loss of utilities such as electrical distribution, emergency power, water, medical gases and vacuum, steam, HVAC systems, natural gas, vertical and horizontal transportation, and communications

4.9.9.5. Emergency utility shut-off procedures

4.9.9.6. Preparation of and use of an alternate facility if the primary facility is unusable. ***NOTE***: The facility manager must inspect the alternate facility and determine what support is needed for the alternate facility to become operational.

4.9.10. Consult medical readiness for details about Annex J to the MCRP. NFPA 99, Chapter 11, will assist the FM preparation of the plan.

4.10. Communication Systems. Communication systems include telephone, internal paging system, cabling for local area networks, installed dictation, central alarm, nurse call, closed circuit television, antennas, and LMR communication systems (radios, pagers, etc.). Although communication systems are traditionally an FM responsibility, many MTFs have moved this function in part or whole to Information Systems for numerous reasons. The MTF Medical Support Squadron Commander (MDSS/CC) makes the final determination as to which activity (FM or Systems Flight) is best suited to perform these functions at the local level. As directed by the MDSS/CC, FM will:

4.10.1. Coordinate the acquisition, installation, and maintenance of communications systems in the MTF, with the exception of computer equipment. Submit AF Form 3215 for all communications requirements to the base Communications and Information Systems Officer. Refer to AFI 33-103, *Requirements Development and Processing,* for guidance.

4.10.2. Process requests to base communications, as appropriate, for changes in or repair of the MTF communications systems.

4.10.3. Ensure communication systems can handle the routine and emergency operations of the facility. Where adequate maintenance support is not available, the facility manager may use commercial contract services.

4.10.4. Contact the regional Health Facilities Office (HFO) and base communications for guidance on acquiring and installing new communication systems, including pre-wiring and cabling.

4.10.5. Serve as the Land Mobile Radio (LMR) Net/Personal Wireless Communication Systems (PWCS) manager.

4.10.5.1. Manage the unit/facility-owned personal wireless communication devices outlined in AFI 33-106, *Managing High Frequency Radios, Personal Wireless Communication Systems, and the Military Affiliate Radio System*.

4.10.5.2. Obtain a copy of the MEMO annual inventory of LMR equipment and prepare inventory lists for base PWCS managers. ***NOTE:*** MEMO issues facility equipment (base stations, spare radios, spare pagers, antenna, etc.) to facility management and issues department equipment (hand held radios, pagers, mobile radios) to using area equipment custodians. Individual use equipment is issued directly to personnel unless they are for on-call/rotating purposes. MEMO records on-call/rotating assets against the using departments equipment account.

4.10.5.3. Coordinate with base PWCS managers to establish local procedures for managing and maintaining PWCS assets (both portable and fixed) and associated equipment.

4.10.6. Serve as the MTF's focal point for telephone system, call system, and paging system repairs. Requests for these services are generated according to AFI 33-103, *Requirements Development and Processing*, and AFI 33-111, *Telephone Systems Management.*

4.10.7. Develop MTF policies and procedures for communication work requests, and maintain a communications work request log that details and tracks each request.

4.10.8. Represent the MTF on the Information Systems Requirements Board (ISRB). If another MTF function performs this duty, the facility manager must provide the representative input on the MTF's communication requirements.

4.10.9. Verify communication systems used for issuing instructions during an emergency are correctly powered by the essential emergency electrical system.

4.11. Service Contracting. Service contracting provides necessary services that cannot be provided by base personnel.

4.11.1. FM is authorized to use contract services for items that cannot be maintained by base level organizations. Examples of items that may require maintenance contracts include: nurse call systems, medical gas systems, groundskeeping, elevators, water softening systems, automatic doors, fire alarm systems, regulated medical waste removal and disposal, etc.

4.11.2. FM coordinates all such contracts with BCE or base communications to minimize duplication of services.

4.11.3. The MLFC acquires service contracts through the base contracting office according to AFI 63-124, *Performance-Based Service Contracts.*

4.11.4. Service contracts are based on the Performance Work Statement (PWS). FM provides the MLFC with a PWS written according to AFI 63-124. The PWS describes the essential and technical requirements for items, materials, or services, including how FM will determine whether the contractor has fulfilled the requirements of the contract.

4.11.5. Facility managers should consider use of multiyear contracts written with 1-year options to be exercised at the discretion of the Government.

4.11.6. Service Contract Administration. Quality assurance (QA) is based on the minimum surveillance that adequately ensures quality and timely contract performance. It includes corrective measures if contract standards are not met.

4.11.6.1. The facility manager and MLFC works with the base contracting office to determine the level of QA evaluation required and writes a QA surveillance plan (QASP) if a standard plan is not available. A surveillance plan ensures that the facility uses systematic QA methods and meets the requirements of AFI 63-124.

4.11.6.2. The MLFC nominates QA personnel according to AFI 63-124 for contracts requiring QA monitoring. ***NOTE:*** Unless the contract is exempted, the MLFC must appoint QA personnel for contracts exceeding $25,000 annually.

4.11.6.3. The facility manager reviews the terms of all contracts on an annual basis to determine if the contract is still required, meets the needs of the facility, and contains the appropriate terms and conditions.

4.12. The Quality Assurance Program.

4.12.1. The QA program ensures the Air Force receives quality services and pays only for acceptable services received. Only qualified personnel may evaluate the contractor's performance. The individual selected must have a high level of expertise and training in their field due to the nature of the unique, complex, and demanding nature of the contracts being monitored. Assigning QA duties to civilians is preferred due to exercises, deployments, etc.

4.12.2. QA personnel brief staff members who may have official contact with contractor employees. These staff members need to understand the contractual working relationship and avoid any conduct that may allow the contractor to make claims against the Government.

4.12.3. QA personnel annually review the contractor's quality control plan to make sure it covers all aspects of the contract and ensures acceptable performance.

4.12.4. QA personnel perform all evaluations according to the contract, document the contractor's performance, and contacts the base contracting office when the performance does not meet contract standards.

4.12.5. QA personnel must understand the contract and be properly trained to perform their duties.

4.12.6. All personnel involved with the contract must promote good relations between the contracting office, the functional area, and the contractor.

4.12.7. All QA personnel must attend a QA education program offered by the base contracting office within 90 days of their appointment or equivalent computer based training directed by base contracting.

4.13. Facility Operation, Maintenance and Repair.

4.13.1. For all MTFs, medical support buildings, and all Real Property Installed Equipment (RPIE) in those buildings, BCE and/or other support engineers (e.g. contact maintenance support) are responsible for the appropriate utilization of facilities, maintenance and repair, minor construction, fire protection services, and supply of utilities.

4.13.2. FM personnel are not authorized to perform or direct maintenance, repairs, or other activities for which other base agencies or contractors are responsible except for self-help projects that BCE has approved.

4.13.3. Responsibilities of the Facility Manager:

4.13.3.1. Coordinate with BCE and/or other support engineers to formulate plans, shop drawings, PM, repair, and improvements to the interior and exterior of the MTF. FM ensures these plans meet the needs of the medical department involved and coordinate with BMETs, when necessary.

4.13.3.2. As applicable, obtain BCE services according to AFI 32-1001, *Operations Management*, and local BCE policies. FM serves as the MTF primary focal point for requesting, coordinating and monitoring this work.

4.13.3.3. Provide technical input to BCE and/or other support engineers on medical requirements and priorities and ensures the MTF has access to the proper documentation to satisfy medical needs and accreditation standards.

4.13.3.4. Ensure BCE and/or other support engineers maintain and test critical utility systems at appropriate intervals. Ensure maintenance and testing is documented IAW JCAHO guidelines.

4.13.3.5. Ensure individuals who use and maintain utility systems are appropriately trained. ***NOTE:*** The facility manager does not necessarily provide this training.

4.13.3.6. Manage the MTF and grounds maintenance programs, to include policing of grounds, roads, parking lots, helipads, snow and ice removal, grass and shrubbery care, irrigation systems, and pest control within the areas defined by AFI 32-1053, *Pest Management Program.*

4.13.3.7. Evaluate the completeness and workability of plans for extended outages of any or all utilities, including emergency power, horizontal and vertical transport, electric, water and sewage, steam, heating, ventilation, air conditioning, plumbing, medical gas, medical/surgical vacuum, alarm systems, and fire detection and fire suppression systems.

4.13.3.8. Ensure that BCE contingency plans include contingency response to the MTF.

4.13.3.9. Review BCE statements of work for maintenance support services that cannot be obtained through installation resources (waste removal, elevator maintenance, duct cleaning, etc.). Obtain the necessary contract services to meet the needs of the MTF in a timely manner. ***NOTE:*** Develop and monitor contracts for services not normally provided by BCE according to paragraph **4.11**.

4.13.3.10. Review operations and maintenance management in conjunction with BCE and/or other support engineering staff to make sure BCE or contractors provides adequate services. During this review, the facility manager checks that BCE and/or other support engineers properly documents all MTF real property operation, maintenance, repair, and projects. This documentation must comply with current JCAHO Environment of Care standards. The facility manager documents the review in a written report provided to the MLFC, the administrator, and the MTF EOC Committee. Send a copy of the report to BCE and/or other support engineers as a form of feedback.

4.13.3.11. Assess all building equipment and safety systems to determine whether they compromise patient safety. The BCE and/or other support engineers and MTF staff must take action when the Authority Having Jurisdiction (AHJ) determines the level of risk to patients is unacceptably high.

4.13.3.12. Review major building system failures during the assessment of building equipment and safety systems. ***NOTE*** **:** After such an incident, the facility manager briefs the MTF Environment of Care Committee on system failures and their resolution at the next meeting.

4.13.3.13. Verify installed building system blueprints and diagrams accurately indicate emergency shutdown controls for all utility systems and are readily available in the event of an emergency.

4.13.3.14. Review the Recurring Work Program in accordance with AFI 32-1001 and paragraph **4.13.4**).

4.13.4. Recurring Work Program (RWP).

4.13.4.1. Include all utility systems that support the patient care environment in a recurring work program in accordance with AFI 32-1001 and the MTF's utility management plan. These systems include electrical distribution, emergency power, vertical and horizontal transport, heating, ventilating, and air conditioning, plumbing, boiler and steam, medical gas, medical/surgical vacuum, and fire protection and detection.

4.13.4.2. Ensure BCE and/or other support engineers establish regular schedules for grass cutting and landscaping maintenance, adequate storm drain and pavement cleaning, pest control, and refuse collection and disposal.

4.13.4.3. Review the Recurring Work Program annually to ensure the following:

4.13.4.3.1. The RWP identifies recurring maintenance on all items of Real Property Installed Equipment (RPIE) that are essential to hospital operations and patient safety. If not, ensure BCE establishes maintenance responsibility by other means, such as contract. ***NOTE* :** Real property is defined in AFI 32-9005, *Real Property Accounting and Reporting*.

4.13.4.3.2. Critical items are inspected at appropriate frequencies.

4.13.4.3.3. Work is performed on schedule.

4.13.4.3.4. Frequency of inspection and actions are listed on AF Form 1841, **Maintenance Action Sheet (MAS)**, or computer products appropriate for the criticality of the equipment.

4.13.4.3.5. Items listed on the MAS meet the criteria established by the equipment manufacturer. ***NOTE:*** Facility managers need to work with BCE to ensure recurring maintenance is established at appropriate frequencies in accordance with NFPA and JCAHO standards. In some cases, it may be feasible and cost-effective to allow a low risk item to run to failure using a risked-based maintenance approach. The utility management plan will identify those items as receiving corrective maintenance only.

4.13.4.3.6. Documentation of recurring work is available.

4.13.4.3.7. The documentation demonstrates that the RWP effectively identifies and corrects the problems.

4.13.4.3.8. Maintenance personnel notify the facility manager or representative before beginning any work that will affect patient safety or support systems vital to operation of the MTF.

4.13.4.3.9. Contracts for recurring maintenance on medical gas systems, alarm systems, elevators, etc. contain SOWs and quality assurance plans in keeping with the critical nature of the equipment.

4.13.5. Managing Requests for Work.

4.13.5.1. The facility manager will develop MTF guidance and directives for obtaining facility maintenance and repair services. Include methods for contacting BCE and/or other support engineers after normal duty hours.

4.13.5.2. FM serves as the MTF point of contact to call Direct Scheduled Work Orders (DSW) into the BCE and/or other support engineer's service call specialist. ***NOTE:*** Use a DSW for work that does not require detailed planning.

4.13.5.3. Advises BCE and/or other support engineers if the work qualifies as emergency, urgent, or routine according to AFI 32-1001, *Operations Management*, based upon medical mission requirements. Provide BCE and/or other support engineers with a proper job description and correct location when the DSW is called in.

4.13.5.4. Prepare and forward AF Form 332, **Base Civil Engineer Work Request**, to BCE and/or other support engineers for all work requirements (repairs, maintenance, or minor construction) that require planning, materials, or work by contractors. Complete the form according to applicable directives and local policy.

4.13.5.5. Maintain, either electronically or manually, logs and records of all work requests submitted to BCE and/or other support engineers. Use these logs to check that jobs are completed in a reasonable time and to report the status of work requests to medical functions and departments. ***NOTE:*** MTFs that have the Defense Medical Logistics Standard Support – Facility Management (DMLSS-FM) system are required to maintain all work requests electronically IAW paragraph **4.14**.

4.13.5.6. Coordinate work schedules with the MTF staff when necessary. Ensure BCE and/or other support engineer shop personnel or commercial contractors schedule work promptly to minimize disruptions to patient care.

4.13.5.7. For all outside contractors or maintenance personnel working in the MTF on a temporary basis, maintain a log listing that includes arrival and departure times, organization or company, work order or purchase order number, individuals' names, and destinations within the hospital or clinic.

4.13.5.8. Review BCE work order reports, job reports, and contract reports for all medical buildings to monitor the status of all requests. Follow up as appropriate.

4.13.5.9. Self help projects, however minor, should be reviewed by and coordinated with BCE and/or other support engineers for possible impact on the mechanical distribution system.

4.14. DMLSS-FM System.

4.14.1. All MTFs are required to upload, maintain, and use the following features of DMLSS-FM: MTF Information, Facility Inventory, Room Inventory, Facility Systems Inventory, Work Request, Project Management, Preventive Maintenance Schedule, and RC/JCAHO. Non-use of any mandatory DMLSS-FM system requires a written waiver from AFMSA/SG8F. The waiver request must be signed by the MTF commander. Waivers will be limited to site-unique, extraordinary circumstances. Facility inventory and project management data must be reconciled with BCE to ensure ACES is accurate.

4.14.1.1. MTF Information. The MTF Information module captures information on the installation(s) that FM serves. An installation is defined as federally owned or leased land designated to support AF activities (e.g., Andrews AFB). More than one installation can be loaded.

4.14.1.2. Facility Inventory. The Facility Inventory module captures information on buildings and other structures (e.g., helipads, parking lots) that make up the MTF complex. Facility manager needs to ensure ACES accurately reflects the plant replacement value (PRV) for all assigned buildings. The PRV in ACES is updated annually with new cost factors. Accurate PRV numbers are essential for SRM funding and for replacement/recapitalization planning. Building gross square footage used to calculate PRV is not the same as square footage calculated for HAMS purposes.

4.14.1.3. Room Inventory. The Room Inventory module captures information on rooms and other spaces (e.g., hallways, landings) that exist within a facility.

4.14.1.4. Facility Systems Inventory. The Facility Systems Inventory module captures information on installed equipment items (e.g., chillers, boilers, air handlers, pumps, generators, transformers) that support operation of the facility.

4.14.1.5. Work Request. The Work Request module is used by customers and facility management personnel to track and manage various types of work including, recurring work, service calls, safety requirements, and requests for new work.

4.14.1.6. Project Management. The Project Management module is used to store and retrieve actions related to large-scale maintenance, renovation, or construction projects. Use this module to identify and track projects from inception through completion.

4.14.1.7. Preventive Maintenance (PM) Schedule. The PM Schedule module is used to establish requirements for recurring maintenance on those items maintained in the Facility Systems Inventory module. To ensure critical maintenance history is retained, use of this module is mandatory for MTFs with a facilities maintenance contract. MTFs who receive maintenance and repair support directly from BCE are not required to use the PM Schedule module if all required maintenance history is maintained in BCE's WIMS system (or equivalent).

4.14.1.8. RC/JCAHO. The Regulatory Compliance/Joint Commission on Accreditation of Hospital Organizations (RC/JCAHO) module is used to manage and maintain medical facilities to the standards required by regulatory agencies.

4.14.2. The facility manager ensures appropriate FM personnel receive DMLSS-FM training. Information regarding DMLSS-FM training classes and on-line self-help training tools are located on the Facility Management section of the AFML website.

4.14.3. As the DMLSS-FM Security Manager, the facility manager is responsible for assigning appropriate roles and privileges to DMLSS-FM users.

4.14.4. The facility manager ensures the DMLSS-FM system is fully utilized by facility management and maintenance contractor personnel and ensures the database is kept up-to-date.

4.15. Facility Restoration and Modernization.

4.15.1. Facility management works with the Regional Health Facilities Office, MAJCOM, BCE and/or other support engineers to formulate plans for addition, alteration, and replacement MILCONs, as well as O&M MTF projects. Assists BCE and/or other support engineers with the completion of DD Form 1391, Military Construction Project Data, for all projected military construction projects (MILCON) projects and minor construction (MC) according to AFI 32-1021, Planning and Programming of Facility Construction Projects. Validates DD Forms 1391 annually with BCE and the MAJCOM Surgeon's Office. Ensures project numbers are assigned in ACES and Q-Rating is adjusted as necessary.

4.15.2. FM reviews equipment installation plans to determine what facility and utility modifications are required. Confer with the medical equipment maintenance staff to coordinate any unique facility requirements for new equipment being purchased, submit proper work orders to BCE and/or other support engineers, and coordinate with them on the equipment installation.

4.15.3. FM serves as a member or advisor of the Equipment Review and Authorization Activity (ERAA). Work closely with the MEMO and medical equipment maintenance to ensure necessary facility modifications are completed before new medical equipment arrives.

4.15.4. When outfitting new MILCONs, FM works closely with the MLFC, MEMO, and medical equipment maintenance to coordinate equipment installation as soon as possible after the beneficial occupancy date.

4.16. Medical Facility Development Plan.

4.16.1. Purpose and Scope. A medical facility development plan (MFDP) is a long-range planning tool used by the MTF executive committee to prioritize facility projects necessary for the operation, maintenance, and future development of the MTF. The MFDP:

4.16.1.1. Identifies requirements, resources, and priorities for the FYDP + 2.

4.16.1.2. Relates, integrates, and balances equipment plans, accreditation standards, space utilization studies, safety codes, energy goals, mission changes, appearance enhancement plans, strategic plans, etc.

4.16.1.3. Forms the basis for managing facility maintenance, repair, restoration, and modernization.

4.16.1.4. Forecasts medical requirements and priorities for projects by contract for the benefit of both the medical and base civil engineer communities.

4.16.1.5. Provides a road map to the future for the MTF by providing continuity and coherence in resource expenditures over the course of several years.

4.16.1.6. Serves as a strategic planning reference on facility matters for MTF executive management, MAJCOM staff assistance teams, and regional health facility officers.

4.16.1.7. Shows relationships of planned facility actions over time to simplify coordinating actions.

4.16.2. MFDP Development and Coordination.

4.16.2.1. Each MTF develops and maintains an MFDP. The MFDP must be coordinated to ensure consistency with other plans and actions.

4.16.2.2. In developing the plan, the facility manager uses the MTF strategic plan, assistance visit reports, Health Services Inspection reports, facility utilization studies, Statement of Conditions document, JCAHO or AAAHC accreditation survey results, wing safety reports, resource protection reports, and any other appropriate documentation.

4.16.2.3. The facility manager solicits input for the MFDP from the executive committee, the resource manager, BCE and/or other support engineers, base communications, and the regional Health Facility Office.

4.16.2.4. The facility manager will coordinate the MFDP with the following: (1) resource management to ensure it is consistent with the MTF financial plan, (2) MEMO to ensure support of planned equipment purchases, and (3) information systems to ensure support of computer systems and networks.

4.16.2.5. The MFDP is a working document that must be updated on a continual basis as changes and updates occur in the plan. To ensure that the medical facility development plan remains current, the facility manager, MLFC, and administrator jointly review the priorities quarterly. Document an annual review of the entire plan by the MTF commander. Approved plan is forwarded to MAJCOM if requested.

4.16.2.6. The BCE community planner is responsible for insuring preparation and maintenance of the installation General Plan. Any matters concerning long-range facility development must be coordinated with the base community planner.

4.16.3. Contents and Organization.

4.16.3.1. Any format or media that provides efficient means of MFDP access, update, and distribution is appropriate.

4.16.3.2. Minimum Mandatory Requirements. The MFDP may include other relevant information or reports, but must at least include the following items listed here:

4.16.3.2.1. Table of Contents. The MFDP has a table of contents showing pages, tabs, and/or file names.

4.16.3.2.2. Statement of Conditions (SOC). For all base medical facilities requiring a SOC in accordance with JCAHO standards, include an up-to-date comprehensive statement of conditions in the MFDP.

4.16.3.2.3. List of buildings. Include a list of all buildings assigned to medical use, by Real Property Site Unique Identification (RPSUID) and functional occupancy/category code. This information is obtained from the BCE real estate management office or DMLSS FM program, as applicable. For each building or applicable portion thereof, indicate the gross square footage of space used by the MTF and the Q-Rating assigned by BCE. Also indicate the dates of the last and next facility survey and summarize significant findings, to include those items not complying with NFPA 99, Health Care Facilities; NFPA 101, Life Safety Code, or other referenced standard or code.

4.16.3.2.4. Building Systems. Include a list, file, or database of all building systems and real property installed equipment (RPIE) in the MTF. For each system, indicate the age of the equipment, a brief assessment of condition, the normal source of PM and repairs, the date last overhauled or rebuilt, and the estimated fiscal year and cost (by EEIC) for the next replacement or overhaul. ***NOTE:*** You can obtain a list of building systems and RPIE from the base real estate management office or the DMLSS-FM system.

4.16.3.2.4.1. The systems listed in the MFDP should include at least: emergency generators, emergency power switch gear, medical/surgical vacuum systems, fire alarm systems, fire detection systems, fire suppression systems, air compressors, elevators, chillers, air handlers, hospital boilers, roofing systems, exhaust fans, public address and paging systems, nurse call systems, and piped medical gas systems and associated alarms.

4.16.3.2.4.2. If the design or performance standards for a system are prescribed in Air Force design criteria (available from the regional HFO), NFPA 99 or NFPA 101, indicate whether the system conforms to those standards. If not, include a description of why it fails to comply, and indicate projects programmed to bring the systems up to standards.

4.16.3.2.5. Facility project listing. Include a planned schedule for facility projects broken down by fiscal year, order of priority as determined by the executive committee, and include corresponding ACES project number.

4.16.3.2.5.1. The FM should include a copy of the project documents (AF Form 601, Equipment Action Request, AF Form 332, Base Civil Engineer Work Request, and DD Forms 1391, Military Construction Program) in the medical facility development plan. If not included in the body of the plan, indicate where users of the MFDP can find copies of the documents.

4.16.3.2.5.2. For each project on the priority list, provide DMLSS and ACES project or work order number, title, brief description, type of project, estimated cost, impact if not funded, and status. Explain how the MTF will be affected if the project is not funded, including impacts on risk management, safety, life safety and fire protection, continuity of operations, mission capability, readiness, energy efficiency, accreditation, planned installation of equipment and computers, and professional environment.

4.16.3.2.5.3. Facility project listing must include at least the following types of projects: military construction (MILCON) projects, minor construction projects, O&M funded project-type initiatives, architect and engineering studies, energy savings performance contracts, and major facility equipment replacements or upgrades.

4.16.3.2.5.4. In accordance with paragraph 4.14.1.6., all facility projects will be loaded into the DMLSS-FM Project Management module as well as ACES-PM. The project data in the system should serve as the basis for the Facility Project Listing portion of the MFDP.

4.17. Facility Utilization.

4.17.1. Responsibilities.

4.17.1.1. An MTF representative will attend the Base Facility Utilization Board and the Facility Utilization Working Group. Executive management should represent the MTF at the Facility Utilization Board, and the facility manager should attend the working group meetings.

4.17.1.2. FM will act on any plans recommended by the commander and executive committee that involve BCE and/or other support engineer resources and provide an annual report of square feet per section to the resource manager for use in the Medical Expense and Reporting System (MEPRS). The data in the Room Inventory module of the DMLSS-FM system should serve as the basis for the required MEPRS reporting.

4.17.1.3. The regional Health Facilities Office provides space planning criteria for all medical functional areas and conducts facility utilization surveys.

4.17.1.4. The MTF commander or administrator requests a facility assessment study (FAS) at least every 5 years. Request a FAS more often when the MTF gains new mission requirements that create space deficits or when existing space is severely inadequate and cannot be corrected without a MILCON.

4.17.2. Medical Facility Utilization Board (MFUB).

4.17.2.1. The administration may set up a MFUB that evaluates space requests and recommends actions to the MTF executive committee to ensure that facility space is allocated effectively. The MFUB helps determine the adequacy of medical support facilities and enables the most appropriate use of existing space.

4.17.2.2. The medical support squadron commander or deputy group commander normally chairs the MFUB.

4.17.2.3. The MFUB chairman determines the appropriate level of membership. Members of the MFUB should include senior officers and enlisted representatives from the major functional areas, including infection control, who can assess the impact of space changes within the medical facilities. Representatives from medical equipment maintenance and information systems attend as advisors to ensure that technical issues are properly addressed.

4.17.2.4. Review all current and proposed space allocations within facilities designated with real property Category Code 5XX-XXX, and any other real property that is medical responsibility (442515 – WRM Storage, 811XXX – Plant/Utility, etc).

4.17.2.5. Review and recommend to the executive committee priorities on all projects that require allocation of O&M funds.

4.17.2.6. Obtain regional Health Facilities Office and MAJCOM review on projects that change functional capabilities before submitting them to the executive committee for final approval.

4.18. Facility Appearance.

4.18.1. The facility manager develops a long-term plan for maintaining and improving the appearance of the facility. The plan includes painting, renovating floor covering (tile or carpeting), replacing wall covering, and maintaining and renovating any portion of a medical facility.

4.18.2. The facility manager works with the administrator and executive staff to set standards for signage. The facility manager ensures all types of signs (directional, informational, identification, regulation, and directories) for inside and outside the MTF are purchased and installed in compliance with all applicable codes, standards, laws, and Air Force instructions. The facility manager should work with the BCE to ensure MTF signage complies with Air Force and any applicable MAJCOM sign standards.

4.18.3. Standardize directional signs throughout the facility for ease of use by patients, visitors, and staff.

4.18.4. Exterior signs must clearly indicate patient entrances to the facility.

4.18.5. Install signs both inside and outside that clearly identify the emergency department or room. Ensure the route to the emergency department is clearly marked on base roads. Restrict vehicular traffic in the emergency services area to ensure unrestricted access for emergency patients.

4.19. Housekeeping.

4.19.1. The facility manager oversees housekeeping functions to ensure the responsible personnel are doing their job effectively and on a timely basis.

4.19.2. Non-patient care administrative and support facilities that are separated from clinical activities should be placed on the base custodial contract when cost effective. ***NOTE:*** This does not apply to administrative areas within a patient care facility. All areas within a patient care facility, to include administrative areas, will be managed under a single aseptic housekeeping contract in accordance with paragraph **4.19.3**.

4.19.3. Facilities maintaining clinical activities will be managed under a single aseptic housekeeping contract. ***NOTE:*** The MTF commander, with the assistance of the medical facility infection control officer, will provide documented justification to MAJCOM for any deviations from this standard.

4.19.4. Using HAMS. The Air Force Medical Support Agency, Medical Facilities Division, Contracting Policy and Operations Branch, HQ AFMSA/SGSF 2504 Gillingham Drive, Building 170, Suite 390, Brooks AFB TX 78235-5105, establishes policies for the housekeeping contracting program and develops the master Performance Work Statement (PWS) for all housekeeping contracts.

4.19.4.1. The HAMS PWS requires the contractor to provide all labor, management support, transportation, equipment, and materials (as specified in the Individual Medical Facility Exhibit (IMFE)) to keep the facility cleaned to contract specifications. Under all housekeeping contracts, the contractor must provide a total clean service as defined in the PWS. ***NOTE:*** The IMFE contains specific descriptions of the facility, room listings, the cleaning requirement category of each room, cycle tasks (cleaning of light fixtures, exterior windows, interior of duct covers, walls, drapes, etc.), and government furnished facilities, supplies, materials, and equipment.

4.19.4.2. Each individual MTF tailors the requirements in an IMFE that adapts the general housekeeping PWS to the individual MTF. ***NOTE:*** Contact HQ AFMSA/SGSF to obtain a guide for administering the HAMS contract.

4.19.4.3. The facility manager develops the IMFE for HAMS contracts before contract solicitation. Coordinate the IMFE with key MTF staff members (infection control, nursing services, and hospital or clinic services) before contract solicitation.

4.19.4.4. The facility manager ensures that each unique and separate work area within the MTF responsibility is addressed individually.

4.19.4.5. Contract Changes. The facility manager requests a contract change and forwards to HQ AFMSA/SGSF when any HAMS contract changes are required. Such changes include: additions or deletions of rooms to be cleaned, changes in cleaning frequencies, addition or deletion of cycle tasks, and changes in government furnished space or supplies.

4.19.4.6. Evaluating Performance. The facility manager ensures the contractor provides a total clean service following the guidelines of the contract.

4.19.4.6.1. The facility manager monitors how well the contractor completes cycle tasks listed in the HAMS contract.

4.19.4.6.2. The facility manager develops local procedures for how MTF personnel complete AF Form 714, **Customer Complaint Record**. When MTF staff members note a discrepancy, they should immediately prepare AF Form 714 and bring it to the FM office. If MTF staff notice discrepancies after normal duty hours, the AF Form 714 is brought to FM at the beginning of the next duty day. ***NOTE:*** Customer complaints may be captured in the DMLSS-FM Work Request module to facilitate management and long-term trend analysis.

4.19.4.6.3. Designated FM personnel validate the discrepancy and notify the contractors' housekeeping director or assistant to correct the discrepancy.

4.19.4.6.4. QA personnel for the HAMS contract determines if the contractor sufficiently corrects the discrepancy and if further action is needed.

4.19.4.6.5. Send validated customer complaints to the administering contracting office before the QA personnel completes the DD Form 250, **Material Inspection and Receiving Report**. This form releases payment for monthly services. Authenticate DD Form 250 for contract service billings.

4.19.4.7. Special Considerations. FM must be prepared for special cleaning requirements needed for infection control and have contingency plans in the event of unusual circumstances.

4.19.4.7.1. The facility manager ensures the contractor performs cleaning when and as required by the Infection Control Committee (ICC).

4.19.4.7.2. The MTF commander and resource manager must approve any tasks the ICC assigns that are outside the scope of the contract. Otherwise the contractor may make claims for work outside the scope of the current contract.

4.19.4.7.3. The facility manager attends the ICC meetings and monthly performance meetings with the administering contracting officer, along with the director of housekeeping, when appropriate.

4.19.4.7.4. The facility manager develops a contingency plan to provide service if contract services are suspended or terminated because of a labor strike or contractor default. The executive committee reviews this plan annually ensuring it correlates with other labor related plans.

4.19.5. Using a Performance Work Statement (PWS). MTFs not using the HAMS contract method can obtain a housekeeping PWS from HQ AFMSA/SGSF and implement a base-level service contract according to AFI 63-124, *Performance-Based Service Contracts* **.** See paragraph **4.11** for instructions on service contracting.

4.19.5.1. The local base contracting officer can help tailor this PWS to the particular requirements of the facility.

4.19.5.2. Do not use a local housekeeping PWS if the facility has "cap and gown" areas. In this case, facilities must use the HAMS contract throughout the facility. ***NOTE:*** MAJCOMs have approval authority to waiver this requirement based on local circumstances.

4.19.5.3. Where applicable, use guidelines provided in the "Evaluating Performance" and "Special Considerations" areas for HAMS contracts above.

4.19.6. Using DMLSS-FM to Support Management of HAMS/Housekeeping Contracts. The cleaning requirement of each room and the area cleaned of each room will be captured in the Room Inventory module of the DMLSS-FM system. Data in the Room Inventory module will be used as the basis for HAMS/Housekeeping contract room listings to support contract modifications and renewals.

4.20. Managing MTF Waste.

4.20.1. Segregation, Handling and Storage of MTF Waste.

4.20.1.1. Employees within each section must segregate waste into appropriate containers.

4.20.1.1.1. Regulated Medical Waste. Put regulated medical waste into bags of a distinct color or mark it with the universal biohazard symbol. Use red or orange colored bags to identify regulated medical waste. RMW must be put in the appropriate size, weight and color bag as defined by state/local requirements. The bags must be impervious to moisture. Use autoclavable bags when waste is to be sterilized.

4.20.1.1.2. General Waste. Segregate general waste and place it in colored bags. Use a bag color that you can easily distinguish from the one used for regulated medical waste. Normally brown, black, or clear is used for general waste.

4.20.1.1.3. Sharps. Place used sharps in rigid, leak-resistant, puncture-resistant, and sealable containers that are distinctively marked with the biohazard symbol.

4.20.1.1.4. Fluids. Place fluids in quantities greater than 20cc in packaging that is rigid, leak-resistant, break-resistant, and marked with the bio-hazard symbol.

4.20.1.2. Housekeeping will collect medical waste in a covered transport cart, separate from general refuse, and place it in a locked storage area until it is either treated or picked up by a disposal contractor.

4.20.1.3. FM instructs housekeeping to immediately report inappropriate segregation of trash through the housekeeping supervisor to FM. FM engages with the section supervisors to correct the situation.

4.20.1.4. MTF staff spilling medical waste must take immediate action to cordon the area and clean the spill using appropriate precautions. Notify housekeeping so the affected area can be thoroughly cleaned.

4.20.1.5. The facility manager must control access to regulated medical waste storage areas.

4.20.1.6. Storage areas must maintain the integrity of packaging, be locked to prevent unauthorized access, and meet humidity and air change per hour requirements. The storage area prevents excessive odors and protects the waste from water, rain, wind, animals and insects.

4.20.2. General Waste.

4.20.2.1. BCE is responsible for solid waste collection and disposal service, not including regulated medical waste, according to AFI 32-1061, *Providing Utilities to USAF Insallations*, and AFOSH 91-8, *Medical Facilities*. The handling and disposal of universal waste is also addressed in 40 CFR, Part 273.

4.20.2.2. BCE determines Air Force requirements for such services and furnishes technical information to base contracting. The Facility manager works with the BCE point of contact and ensures the MTF is included in the base refuse contract.

4.20.2.3. BCE will obtain waste and recycling receptacles and tell the contractor how often to remove the waste to an appropriate landfill. Ensure that BCE has the waste picked up frequently to minimize storage of waste near the MTF.

4.20.2.4. Review refuse and recycling pickup contracts to ensure the base contract meets MTF needs during holidays and outside of duty hours. Some base contracts may need to include special provisions to accommodate the MTF's continuous operation.

4.20.2.5. Consider using trash compactors to reduce the frequency of pickups.

4.20.2.6. The facility manager must know where the general refuse is dumped and what types of waste the landfill will accept.

4.20.2.7. To conform to applicable local and state laws on waste disposal, the facility manager must inform the BCE waste management contract QA personnel of any local guidance pertaining to medical waste. For example, some landfills accept treated medical waste, some accept treated medical waste in bags of a certain color, and some do not accept medical waste at all.

4.20.3. Regulated Medical Waste (RMW).

4.20.3.1. The MLFC ensures a central point of contact is assigned for the medical waste program and plans are developed and monitored for RMW. This person, who is most often the facility manager, will be responsible for oversight and management of all aspects of the program.

4.20.3.2. Submit the plan to the Infection Control Coordinator (ICC) for review and approval. Provide approved plan to the MLFC for incorporation into the MTF hazardous materials or hazardous waste management plan IAW JCAHO and Environmental Protection Agency (EPA) guidelines and standards.

4.20.3.3. Definitions for RMW vary from state to state. RMW is defined by the EPA as a heterogeneous mixture of general refuse, laboratory and pharmaceutical chemicals and containers, and pathological wastes, all of which may contain potentially infectious wastes; or may even contain wastes classified as hazardous under the Resource Conservation and Recovery Act (RCRA), or contain low-level radioactive waste. Ensure RMW also meeting the definition of a RCRA hazardous waste is managed in accordance with all applicable federal, state, and local regulations, as well as all DoD, AF, and base policies.

4.20.3.4. Regulations for RMW are state specific and may be more stringent than federal guidelines. Obtain current copies of appropriate federal, state, and local law (review Status of Forces Agreements and Final Governing Standards for overseas locations) and ensure MTF waste management plan (including how regulated medical waste is defined) complies with these laws. Ensure a generator permit is obtained, if required, and any permits needed for incinerators are obtained in coordination with the base environmental services and the base environmental coordinator.

4.20.3.5. Maintain copies of manifests that track disposal of RMW for the time specified by the regulating body.

4.20.3.6. Ensure the director of housekeeping documents all training given to housekeeping personnel.

4.20.3.7. Meet regularly with housekeeping to ensure they understand the requirements of the waste management plan.

4.20.3.8. Ensure all MTF personnel safely manage regulated medical waste until the waste is disposed of or destroyed.

4.20.3.9. Budget for any contracts necessary to dispose of regulated medical waste off-site. Develop a SOW to have contractor transport the waste to an EPA-approved destruction facility.

4.20.3.10. The RMW program manager will develop and coordinate contingency plans with the BCE concerning disposal of regulated medical waste during emergencies. The plans must include alternative arrangements for the disposal of regulated medical waste in case of equipment failure (incinerator, autoclave, shredder, grinder, etc.) or cancellation of a contract.

4.20.3.11. On-Site Disposal of Regulated Medical Waste.

4.20.3.11.1. If disposal of waste is handled on-site, the facility manager oversees the operation of the disposal device. The facility treats or disposes of regulated medical waste according to federal, state, and local laws and regulations. The MTF can treat medical waste on-site using incineration, sterilization, grinding and shredding, or other approved methods.

4.20.3.11.2. Incineration**.** The incinerator must be licensed by local environmental regulators and meet all applicable federal, state, and local laws on levels of stack emissions. The facility must also follow all local laws on proper disposal of ash residue. Refer to EPA/625/6-89/024; *EPA Handbook on Operation and Maintenance of Hospital Incinerators.*

4.20.3.11.3. Sterilization. If local laws permit, medical waste may be sterilized and disposed of in a landfill. Overseas locations should refer to applicable Final Governing Standards for permissible direct disposal methods.

4.20.3.11.4. If local regulations permit, liquid medical waste may be discharged into the sanitary sewer system after ensuring no hazardous waste is intermixed.

4.20.3.11.5. Grinding or Shredding. Units that grind or shred waste use a grinding wheel or pummel hammers to render solid medical waste into unrecognizable pulp. Treat this pulp with an ICC-approved disinfectant or sterilize it during the procedure. Obtain approval from local environmental regulators and community public works department before discharging grinder or shredder effluent.

4.20.3.11.6. Many states have regulations requiring medical waste treatment technologies to be certified, licensed, or regulated. Wastes treated on-site prior to being transported off-site for disposal must meet all pre-transport requirements before being shipped off-site. Refer to local laws for specific requirements regarding the segregation, packaging, and labeling of treated medical waste. ***NOTE:*** Individual states have their own requirements. Refer to the Environmental Protection Agency (EPA) website (**http://www.epa.gov**) for additional information and links to state laws and regulations.

4.20.3.11.7. If required by federal or state regulation, each facility must keep a destruction or treatment operating log for each destruction or treatment device. The log includes: the date of each treatment or destruction cycle, the length of the treatment or destruction cycle, the total weight of waste destroyed per destruction cycle, and an estimate of the weight of regulated medical waste destroyed per destruction cycle.

4.20.3.11.8. Facilities submit copies of incinerator destruction reports to the state or federal agencies requiring such documentation. Maintain copies of the destruction reports in official files for 3 years.

4.20.3.12. Off-Site Disposal of Regulated Medical Waste.

4.20.3.12.1. For regulated medical waste that cannot be treated and disposed of on-site, it must be packaged for transportation to an off-site disposal facility IAW all federal, state, and local laws and regulations. The segregation, handling, and storage should be accomplished as outlined in paragraph **4.20.1**.

4.20.3.12.2. A facility disposing of its waste off-site will ensure that it packages regulated medical waste in containers that are rigid, leak-resistant, and impervious to moisture, strong enough to prevent tearing or bursting under normal conditions of use and handling, and sealed to prevent leakage during transport.

4.20.3.12.3. Label all untreated containers with the words "Medical Waste" or "Infectious Waste" or display the universal biohazard symbol. The MTF need not label red plastic bags used as inner containers.

4.20.3.12.4. Mark each individual container of untreated medical waste being transported off-site with generator's name, generator's state permit number or address, transporter's name, and transporter's state permit or address. ***NOTE***: Where required by federal or state regulations, mark individual sharps and fluid containers with the generator's name and state permit number or address.

4.20.3.12.5. The facility manager budgets for this contract and develops a statement of work to have a contractor transport the regulated medical waste to an EPA-approved destruction facility. Use the HQ AFMSA/SGSL sample SOW and AFI 63-124, *Performance Based Service Contracts*, to develop the SOW. Include the following provisions in the contract:

4.20.3.12.5.1. The contractor will prepare a manifest listing all containers and contents picked up. The contractor will sign the manifest and a copy returned prior to transport.

4.20.3.12.5.2. The waste will be transported in a fully enclosed vehicle (approved by federal, state, and local regulatory authorities to transport regulated medical waste).

4.20.3.12.5.3. The contractor will furnish the facility manager with an annotated copy of the manifest showing the date of destruction, means of destruction, and person destroying the waste. Facilities will follow Federal and state tracking requirements and maintain the forms and manifests as required by Federal and state regulations, or for a period of 3 years, whichever is greater.

4.20.3.12.5.4. The contractor will maintain all required permits relevant to transporting and destruction of regulated medical waste.

4.20.3.12.5.5. The contractor will provide in-service training for the employees.

4.20.3.12.6. The facility manager serves as QA monitor for the contract to dispose of regulated medical waste and ensures the disposal adheres to all state and local requirements.

4.21. Energy Conservation Planning.

4.21.1. The FM will develop an energy conservation plan in conjunction with the MTF executive committee. The plan must comply with AFPD 23-3, *Energy Management*, coordinated with the base energy manager, and updated annually.

4.21.2. Most conservation measures can be classified into six basic categories: awareness, maintenance, retrofit, replacement, new construction, and load shifting.

4.21.2.1. Awareness measures are low-cost or no-cost measures that result from user education.

4.21.2.2. Maintenance measures are low-cost ways to ensure peak performance from existing systems and continued high performance from new systems.

4.21.2.3. Retrofit provides technological improvements to existing buildings and equipment.

4.21.2.4. Replacement is the installation of high-efficiency equipment when existing equipment wears out. In addition, inefficient equipment should be replaced before its scheduled replacement time if economical.

4.21.2.5. New construction offers an unparalleled opportunity to install the most cost-effective heating, ventilation and air conditioning (HVAC) system, lighting, and energy control equipment along with appropriate insulation, high-efficiency windows, and energy-saving design considerations.

4.21.2.6. Load shifting of electrical loads away from peak demand periods saves money when the local utility imposes "demand charges" based not just on kilowatt-hours (kWh) of energy used, but also on the highest kilowatt (kW) demand, or rate of use, over a certain period.

4.21.3. Funding for energy conservation projects can come from several sources. Among them are government, public utilities, or from the private sector through Energy Savings Performance Contracts (ESPC). The base energy manager should be consulted to determine if funding sources, other than local O&M funds, are available.

4.21.3.1. Government funding sources include operations and maintenance (O&M) funds, and military construction (MILCON) funds through the Energy Conservation Investment Program (ECIP).

4.21.3.2. Utility funding is in the form of Demand Side Management programs.

4.21.3.3. ESPC is a contracting procedure in which a private contractor evaluates, designs, finances, acquires, installs, and maintains energy saving equipment and/or systems for a client and receives compensation based on the energy consumption/cost savings performance of those equipment items/systems. Facility managers considering an ESPC will consult the Health Facility Division's Sustainment Branch. The Sustainment Branch must validate the ESPC before any MTF enters into a contract agreement.

4.21.4. The BCE base energy manager is responsible for all energy issues on base. Any matters concerning energy consumption, reduction or any projected or actual energy audits at the MTF must be coordinated with the base energy manager.

4.22. Forms Prescribed.

4.22.1. AF Form 502, **Ground Monitor Test Record**

4.22.2. AF Form 509, **Medical Equipment Maintenance Record**

4.22.3. AF Form 4033, **PMI/AE Certification Label**

GEORGE PEACH TAYLOR, JR., Lieutenant
General, USAF, MC, CFS
Surgeon General

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFCSM 41-230, Volume 2, *Medical Logistics System (MEDLOG): I008/AJ Users' Manual*

AF ETCA, *Air Force Education and Training Course Announcements Database*

AFI 10-211, *Civil Engineer Contingency Response Planning*

AFI 10-403, *Deployment Planning and Execution*

AFI 21-113 *Air Force Metrology and Calibration (AFMETCAL) Program*

AFI 25-101, *War Reserve Material (WRM) Policy*

AFI 25-201, *Support Agreements Procedures*

AFI 31-101, *The Air Force Installation Security Program*

AFI 32-1021, *Planning and Programming of Facility Construction Projects*

AFI 32-1023, *Design and Construction Standards, Execution of Facility Construction Projects*

AFI 32-1053, *Pest Management Control*

AFI 32-1061, *Providing Utilities to USAF Installations*

AFI 32-1063, *Electric Power Systems*

AFI 32-2001, *The Fire Protection Operations and Fire Prevention Program*

AFI 32-9005, *Real Property Accountability and Reporting*

AFI 33-103, *Requirements Development and Processing*

AFI 33-106, *Managing High Frequency Radios, Land Mobile Radios, Cellular Telephones, and the Military Affiliate Radio System*

AFI 33-324, *The Information Collections and Reports (ICR) Management Program; Controlling Internal, Public and Interagency Air Force Information Collections*

AFI 36-2101, *Classifying Military Personnel (Officer and Airmen)*

AFI 36-2201, *Developing, Managing and Conducting Training*

AFI 36-2626, *Airman Retraining Program*

AFI 37-138, *Records Disposition – Procedures and Responsibilities*

AFI 38-301, *Productivity Enhancing Capital Investment (PECI) Program*

AFI 41-104, *Professional Board and National Certification Examinations*

AFI 41-120, *Medical Resource Management Operations*

AFI 41-203, *Electrical Safety in Medical Treatment Facilities*

AFI 44-102, *Professional Policies and Procedures*

AFI 44-108, *Infection Control Program*

AFI 44-119, *Clinical Performance Improvement*

AFI 63-124, *Performance Based Service Contracts*

AFI 65-601 VI, *Budget Guidance and Procedures*

AFI 65-503, *US Air Force Cost and Planning Factors*

AFI 91-202, *The US Air Force Mishap Prevention Program*

AFI 91-204, *Safety Investigations and Reports*

AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Prevention and Health (AFOSH) Program*

AFJI 32-1059, *Maintenance of Fire Protection Systems*

AFJI 41-206, *Review Procedures for High Cost Medical Equipment*

AFJMAN 24-204, *Preparing Hazardous Materials for Military Air Shipments*

AFMAN 23-110, Volume 5, *Air Force Medical Materiel Management System – General*

AFMAN 23-227 (I), *Storage and Handling of Liquefied and Gaseous Compressed Gasses and Their Full and Empty Cylinders*

AFMAN 64-108, *Service Contracts*

AFOSHSTD 91-8, *Medical Facilities*

AFOSHSTD 91-12, *Machinery*

AFOSHSTD 91-45, *Hazardous Energy Control and Mishap Prevention Signs and Tags*

AFOSHSTD 91-66, *General Industrial Operations*

AFOSHSTD 91-90, *Precision Measurement Equipment Laboratory*

AFOSHSTD 48-9, *Radiofrequency Radiation (RFR) Safety Program*

AFOSHSTD 48-139, *Laser Radiation Protection Program*

AFPD 23-3, *Energy Management*

AFPD 41-2, *Medical Support*

DoDI 4000-19, *Interservice and Intragovernmental Support*

Abbreviations and Acronyms

AAMI—Association for the Advancement of Medical Instrumentation

AE—Aeromedical Evacuation

AETC—Air Education and Training Command

AFCSM—Air Force Computer Systems Manual

AFI—Air Force Instruction

AFIA—Air Force Inspection Agency

AFIT—Air Force Institute of Technology

AFJI—Air Force Joint Instruction

AFMAN—Air Force Manual

AFMETCAL ——Air Force Metrology and Calibration Program

AFML—Air Force Medical Logistics

AFMLL—Air Force Medical Logistics Letter

AFMLO—Air Force Medical Logistics Office

AFMLO/FOE ——AFMLO-Clinical Engineering Branch

AFMSA—Air Force Medical Support Agency

AFOSH—Air Force Occupational Safety and Health

AFPC—Air Force Personnel Center

AFPD—Air Force Policy Directive

AFRC—Air Force Reserve Command

AFRES—Air Force Reserves

AFSC—Air Force Specialty Code

AFTO—Air Force Technical Order

AMC—Air Mobility Command

ANG—Air National Guard

BCE—Base Civil Engineer or Engineering

BEE—Bioenvironmental Engineer

BMET—Biomedical Equipment Technician

BPA—Blanket Purchase Agreement

BRR—Revise Item Master

CDRH—Center for Devices and Radiological Health

CFR—Code of Federal Regulations

CONUS—Continental United States

CPRS—Computerized Product Report System

DBPA—Decentralized Blanket Purchase Agreement

DMLSS ——Defense Medical Logistics Standard Support

DoD—Department of Defense

DoDI—Department of Defense Instruction

DRMO—Defense Reutilization and Marketing Office

DSCP—Defense Supply Center Philadelphia

DSW—Direct Scheduled Work Order

ECIP—Energy Conservation Investment Program

ECN—Equipment Control Number

ECRI—Emergency Care Research Institute

EDF—Equipment Data File

EEIC—Element Of Expense/Investment Code

EOC—Environment of Care

EPA—Environmental Protection Agency

ERAA—Equipment Review and Authorization Activity

ESPC—Energy Savings Performance Contract

ETCA—Education and Training Course Announcement

FAC—Functional Account Code

FDA—Food and Drug Administration

FM—Facility Management

GPC—Government Purchase Card

HAMS—Hospital Aseptic Management System

HFO—Health Facility Office

HIPPA—Health Insurance Portability and Accountability Act

HMR—Historical Maintenance Record

HSI—Health Services Inspection

HVAC—Heating, Ventilation, and Air Conditioning

IAW—In Accordance With

ICC—Infection Control Committee

IMFE—Individual Medical Facility Exhibit

JCAHO—Joint Commission on Accreditation of Healthcare Organizations

LMR—Land Mobile Radio

LOGDET—Logistics Detail

LSC—Life Safety Code

MA—Equipment Maintenance (DMLSS)

MAJCOM—Major Command

MAS—Maintenance Action Sheet

MAV—Management Assist Visit

MC—Minor Construction

MCRP—Medical Contingency Response Plan

MEDLOG—Medical Logistics System

MEMO—Medical Equipment Management Office

MEPRS—Medical Expense and Performance Reporting System

MEPS—Military Entrance Processing Station

MERC—Medical Equipment Repair Center

MFDP—Medical Facility Development Plan

MFUB—Medical Facility Utilization Board

MILCON—Military Construction

MLFC—Medical Logistics Flight Commander

MOU—Memorandum of Understanding

MRA—Maximum Repair Allowance

MSC—Medical Service Corps

MSL—Request Maintenance Source List

MTF—Medical Treatment Facility

NFPA—National Fire Protection Association

NSN—National Stock Number

O&M—Operations and Maintenance

OEM—Original Equipment Manufacturer

OI—Operating Instruction

OIC—Officer In Charge

OPR—Office of Primary Responsibility

OSHA—Occupational Safety and Health Administration

PACAF—Pacific Air Force

PCRI—Post Calibration Radiation Inspection

PECI—Productivity Enhancing Capital Investments

PM—Preventive Maintenance

PMEL—Precision Measurement Equipment Laboratory

PMI—Patient Movement Items

PS&M—Procurement Source and Management Code

PWCS—Personal Wireless Communication Systems

PWO—Produce Unscheduled Work Order

PWS—Performance Work Statement

QA—Quality Assurance

QA/RM—Quality Assurance/Risk Manager

QASP—Quality Assurance Surveillance Plan

RC—Return to Contractor

RC/CC—Responsibility Center/Cost Center

RCRA—Resource Conservation and Recovery Act

RMO—Resource Management Officer

RMW—Regulated Medical Waste

ROD—Report of Discrepancy

RPIE—Real Property Installed Equipment

RPL—Repair Part Loss transaction code

RVM—Revise QA Maintenance Record

RWP—Recurring Work Program (Plan)

SAV—Staff Assistance Visit

SID—Source-to-Image Distance (Indicators)

SLR—Establish or Revise Stock Control Level

SMDA—Safe Medical Device Act

SOC—Statement of Conditions

SOW—Statement of Work

SPG—Spare Parts Gain

SPI—Spare Parts Issue

SPL—Spare Parts Loss

SPS—Standard Procurement System

SRM—Sustainment, Restoration, and Modernization

SSR—Stock Status Report

SWO—Print Scheduled Work Order

TMDE—Test, Measurement and Diagnostic Equipment

TO—Technical Order

UCA—Unit Cost Accounting

UL—Unable to Locate

USAMMA—United States Army Medical Materiel Agency

USAMMCE—United States Army Medical Materiel Center Europe

UWO—Update Work Order

VASS—Veterans Affairs Special Services

WIMS—Work Information Management System

WRM—War Reserve Materiel

Attachment 2

PUBLICATIONS AND FORMS FOR MEDICAL EQUIPMENT MAINTENANCE PROGRAM

A2.1. Essential Publications. This paragraph lists publications considered essential to operating an effective medical equipment maintenance program. Managers ensure maintenance personnel are familiar with each publication. The majority of these publications are available on the Air Force Publications website at **http://www.e-publishing.af.mil**. See paragraph **A2.3** for sources of commercial publications.

A2.1.1. AFI 41-201, *Clinical Engineering Support*

A2.1.2. AFI 44-119, *Clinical Performance Improvement*

A2.1.3. AFMAN 23-110, Volume 5, *Air Force Medical Materiel Management System*

A2.1.4. AFCSM 41-230, Volume 2, Medical Logistics System (MEDLOG): I008/AJ *Software Users' Manual*

A2.1.5. AFI 41-203, *Electrical Safety in Medical Treatment Facilities*

A2.1.6. AFJMAN 24-204, *Preparing Hazardous Materials for Military Air Shipments*

A2.1.7. AFOSHSTD 91-8, *Medical Facilities*

A2.1.8. AFOSHSTD 91-45, *Hazardous Energy Control and Mishap Prevention Signs and Tags*

A2.1.9. AFMLO Technical Guidance Document 79-2, *Power Supply Evaluations for X-ray System Installations*

A2.1.10. AFMLO Technical Guidance Document 79-4, *Post-Calibration Radiation Inspection Procedure/Fluoroscopic*

A2.1.11. AFMLO Technical Guidance Document 79-5, *Post-Calibration Radiation Inspection Procedure/Radiographic*

A2.1.12. AFMLO Technical Guidance Document 79-6, *Procedures for Performance and Documentation of X-ray Pre-Procurement Technical Surveys*

A2.1.13. AFMLO Technical Guidance Document 80-8, *Reimbursements for X-ray Reinspections (MERCs only)*

A2.1.14. Consolidated (AFMLL) Maintenance Briefs

A2.1.15. AHA Catalog No. 055950, *Maintenance Management for Medical Equipment*

A2.1.16. NFPA 53, *Fire Hazards in Oxygen Enriched Atmospheres*

A2.1.17. NFPA 70, *National Electrical Code*

A2.1.18. NFPA 99, *Standard for Health Care Facilities*

A2.1.19. TM-DSCP-6500-RPL, *Medical Repair Parts Reference List*

A2.1.20. Title 21, Code of Federal Regulations, Chapter 1, Subchapter J

A2.1.21. Applicable MAJCOM instructions, locally developed medical group instructions, operating instructions, standard operating procedures, and calibration procedures prepared and published by each organization.

A2.1.22. All copies of Health Devices centrally procured by AFMLO/FOE. Make these journals available for review by equipment users throughout the facility.

A2.1.23. ECRI's Health Devices Inspection and Preventive Maintenance System

A2.2. Useful Publications. This paragraph lists other publications that may be maintained by the biomedical equipment support section.

A2.2.1. AFI 10-403, *Deployment Planning and Execution*

A2.2.2. AFI 41-120, *Medical Resource Management Operations*

A2.2.3. AFI 41-206, *Review Procedures for High Cost Medical Equipment*

A2.2.4. AFI 44-102, *Professional Policies and Procedures*

A2.2.5. AFI 65-503, *US Air Force Cost and Planning Factors* (for calculating manpower costs in x-ray acceptance re-inspections)

A2.2.6. AFJI 23-227 (I), *Storage and Handling of Liquefied and Gaseous Compressed Gases and Their Full and Empty Cylinders*

A2.2.7. AFJMAN 24-204, *Preparing Hazardous Materials for Military Air Shipments* (only for activities responsible for WRM assemblages)

A2.2.8. AFOSHSTD 91-12, *Machinery*

A2.2.9. AFOSH 91-66, *General Industrial Operations*

A2.2.10. AFOSH 91-90, *Precision Measurement Equipment Laboratory*

A2.2.11. AFOSHSTD 48-9, *Radiofrequency Radiation (RFR) Safety Program*

A2.2.12. AFOSHSTD 48-139, *Laser Radiation Protection Program*

A2.2.13. Air Force Data Dictionary (On-line at HQ SSC/XPSD, Gunter AFB)

A2.2.14. TO 00-20-14, *Air Force Metrology and Calibration Program*

A2.2.15. TO 00-25-234, *General Shop Practice Requirements for the Repair, Maintenance, and Test of Electronic Equipment*

A2.2.16. TO 33K-1-100, *TMDE Interval Calibration and Repair Reference Guide and Work Unit Code Manual*

A2.2.17. CGA Pamphlet G-4, *Oxygen*

A2.2.18. CGA Pamphlet G-4.1, *Cleaning Equipment for Oxygen Service*

A2.2.19. CGA Pamphlet P-1, *Safe Handling of Compressed Gases in Containers*

A2.2.20. CGA Pamphlet P-2, *Characteristics and Safe Handling of Medical Gases*

A2.2.21. CGA Pamphlet, P-2.1, *Recommendations for Medical-Surgical Vacuum Systems in Health Care Facilities*

A2.2.22. Joint Commission on Accreditation of Healthcare Organizations Comprehensive Accreditation Manual for Hospitals or Ambulatory Care

A2.2.23. American National Standards Institute (ANSI) 136.1, *American National Standard for the Safe Use of Lasers*

A2.2.24. American National Standards Institute (ANSI) 136.3, *American National Standard for the Safe Use of Lasers in Health Care Facilities*

A2.3. Where to Get Commercial Publications. This paragraph lists the sources for the commercial publications listed in paragraph **1.1**. Obtain prices and code revisions in the AFMLL or from the publishers.

A2.3.1. National Fire Protection Association (NFPA) codes and pamphlets: NFPA, Publications Service Department, Batterymarch Park, Quincy MA 02269-9990. **http://www.nfpa.org/**

A2.3.2. Compressed Gas Association (CGA) pamphlets: Compressed Gas Association, Inc. 1235 Jefferson Davis Highway, Arlington VA 22202, (703) 979-0900. **http://www.cganet.com/**

A2.3.3. Title 21, Code of Federal Regulations, Chapter 1, Subchapter J (CFR 21, parts 800 to 1299): Superintendent of Documents, Government Printing Office, Washington DC 20402. Address requests for assistance on the CFR to the Director, Office of the Federal Register, National Archives and Records Service, Washington DC 20408, (202) 523-3517. **http://www.access.gpo.gov/nara/cfr/index.html**

A2.3.4. Joint Commission Manuals: Joint Commission on Accreditation of Healthcare Organizations, One Renaissance Boulevard, Oakbroook IL 60181, (877) 223-6866. **http://www.jcrinc.com/**

A2.3.5. ECRI documentation: ECRI, 5200 Butler Pike, Plymouth Meeting PA 19462, (215) 825-6000. **http://www.ecri.org/**

A2.4. Forms Needed for Management. Use these forms to effectively manage a biomedical equipment support organization:

A2.4.1. AF Form 55, **Employee Safety and Health Record**

A2.4.2. AF Form 754, **Work Order Log and Quality Control Record**

A2.4.3. AF Form 502, **Ground Monitor Test Record**

A2.4.4. AF Form 509, **Medical Equipment Maintenance Record**

A2.4.5. AF Form 538, **Personal Clothing and Equipment Record**

A2.4.6. AF Form 601, **Equipment Action Request**

A2.4.7. AF Form 765, **Medical Treatment Facility Incident Statement**

A2.4.8. AF Form 979, **Danger Tag**

A2.4.9. AF Form 980, **Caution Tag**

A2.4.10. DA Form 2407, **Maintenance Request** (Department of the Army Form)

A2.4.11. AF Form 4033, **AE/PMI Certification Label**

A2.4.12. DD Form 1144, **Support Agreement**

A2.4.13. DD Form 1348, **DoD Single Line Item Requisition System Document**

A2.4.14. DD Form 1574, **Serviceable Tag - Materiel**

A2.4.15. DD Form 1577-1, **Unserviceable (Condemned) Label - Materiel**

A2.4.16. DD Form 1577-2, **Unserviceable (Reparable) Tag - Materiel**

A2.4.17. DD Form 1945, **Defective Power Outlet**

A2.4.18. DD Form 2163, **Medical Equipment Verification/Certification**

A2.4.19. SF 380, **Reporting and Processing Medical Materiel Complaint/Quality Improvement Report**

A2.4.20. AFTO Form 108, **TMDE Certification** (size 3 1/2 x 1 4/6)

A2.4.21. AFTO Form 244, **Industrial/Support Equipment Record**

A2.4.22. AFTO Form 350, **Repairable Item Processing Tag**

A2.4.23. AFTO Form 394, **TMDE Certification** (size 2 x 7/10)

A2.4.24. FDA Form 2579, **Report of Assembly of a Diagnostic X-ray System**

Attachment 3

PUBLICATIONS AND FORMS FOR FACILITY MANAGEMENT PROGRAM

A3.1. Essential Publications. This paragraph lists the publications considered essential to the operation of an effective facility management program. Managers ensure that facility management personnel are familiar with each publication. The majority of these publications are available on the Air Force Publications website at **http://www.e-publishing.af.mil**. See paragraph **A3.3** for sources of commercial publications.

A3.1.1. AFI 32-1021, *Planning and Programming of Facility Construction Projects*

A3.1.2. AFI 32-1032, *Planning and Programming Appropriated Funded Maintenance, Repair, and Construction*

A3.1.3. AFI 32-2001, *The Fire Protection Operations and Fire Prevention Program*

A3.1.4. AFI 32-7086, *Hazardous Materials Management*

A3.1.5. AFI 32-9005, *Real Property Accountability and Reporting*

A3.1.6. AFI 41-203, *Electrical Safety in Medical Treatment Facilities*

A3.1.7. AFI 44-108, *Infection Control Program*

A3.1.8. AFI 91-202, *The Air Force Mishap Prevention Program*

A3.1.9. AFI 91-204, *Safety Investigations and Reports*

A3.1.10. AFI 91-301, *Air Force Occupational Safety and Health (AFOSH) Program*

A3.1.11. AFOSH 91-8, *Safety – Medical Facilities*

A3.1.12. NFPA 10, *Standard for Portable Fire Extinguishers*

A3.1.13. NFPA 13, *Standard for the Installation of Sprinkler Systems*

A3.1.14. NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*

A3.1.15. NFPA 70, *National Electric Code*

A3.1.16. NFPA 72, *National Fire Alarm Code*

A3.1.17. NFPA 80, *Standard for Fire Doors and Fire Windows*

A3.1.18. NFPA 82, *Standard on Incinerators and Waste and Linen Handling Systems*

A3.1.19. NFPA 99, *Health Care Facilities*

A3.1.20. NFPA 101, *Life Safety Code*

A3.1.21. NFPA 110, *Standard for Emergency and Standby Power Systems*

A3.1.22. *The Joint Commission Comprehensive Accreditation Manual for Hospitals*

A3.1.23. *The Joint Commission Comprehensive Accreditation Manual for Ambulatory Care*

A3.2. Useful Publications. This paragraph lists other useful publications for facility management.

A3.2.1. AFI 31-501, *Personnel Security Program Management*

A3.2.2. AFI 32-1023, *Design and Construction Standards and Execution of Facility Construction Projects*

A3.2.3. AFI 32-1061, *Providing Utilities to U.S. Air Force Installations*

A3.2.4. AFI 32-1062, *Electrical Power Plants and Generators*

A3.2.5. AFI 32-1063, *Electrical Power Systems*

A3.2.6. AFI 32-4002, *Hazardous Materials Emergency Planning and Response Program*

A3.2.7. AFI 32-7042, *Solid and Hazardous Waste Compliance*

A3.2.8. AFI 32-7045, *Environmental Compliance Assessment and Management Program (ECAMP)*

A3.2.9. AFI 32-7044, *Storage Tank Compliance*

A3.2.10. AFI 44-119, *Clinical Performance Improvement*

A3.2.11. AFPD 32-7043, *Hazardous Waste Management Guide*

A3.2.12. AFPD 32-20, *Fire Protection*

A3.2.13. AFPD 91-2, *Safety Programs*

A3.2.14. AFPD 91-3, *Occupational Safety and Health*

A3.2.15. CGA P-1, *Safe Handling of Compressed Gases in Containers*

A3.2.16. CGA P-2, *Characteristics of Safe Handling of Medical Gases*

A3.2.17. Military Handbook 1191, *Design and Construction of DoD Medical and Dental Treatment Facilities*

A3.2.18. *2001 American Institute of Architects Guidelines on the Design and Construction of Healthcare Facilities*

A3.3. Where to Get Commercial Publications. This paragraph lists the sources for the commercial publications listed in paragraphs **A3.1** and **A3.2**. ***NOTE:*** At the time of this publication, the Air Force Medical Logistics Office centrally procures the essential commercial products listed in paragraph **A3.1** for all Air Force medical treatment facilities. This includes publications and updates for NFPA 70, NFPA 99, NFPA 101, and the Joint Commission Accreditation Manuals.

A3.3.1. National Fire Protection Association (NFPA) codes and pamphlets: NFPA, Publications Service Department, Batterymarch Park, Quincy MA 02269-9990. **http://www.nfpa.org/**

A3.3.2. Compressed Gas Association (CGA) pamphlets: Compressed Gas Association, Inc. 1235 Jefferson Davis Highway, Arlington VA 22202, (703) 979-0900. **http://www.cganet.com/**

A3.3.3. Joint Commission Manuals: Joint Commission on Accreditation of Healthcare Organizations, One Renaissance Boulevard, Oakbroook IL 60181, (877) 223-6866. **http://www.jcrinc.com/**

A3.4. Forms Needed for Management. The facility management activity may require use of these forms:

A3.4.1. AF Form 55, **Employee Safety and Health Record**

A3.4.2. AF Form 332, **Base Civil Engineer Work Request**

A3.4.3. AF Form 601, **Equipment Action Request**

A3.4.4. AF Form 714, **Customer Complaint Record**

A3.4.5. AF Form 765, **Medical Treatment Facility Incident Statement**

A3.4.6. AF Form 979, **Danger Tag**

A3.4.7. AF Form 980, **Caution Tag**

A3.4.8. AF Form 1841, **Maintenance Action Sheet**